THE IMPACT OF ORGANIZATIONAL CULTURE ON KC-135 COMBAT EDUCATION AND TRAINING

GRADUATE RESEARCH PROJECT

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Abstract

While many of the challenges associated with the combat employment of the KC-135 are well documented and understood, Air Mobility Command's education and training response, a KC-135 Weapons Instructor Course, became a source of conflict – both within AMC and between AMC and outside organizations. Because a KC-135 WIC was a new concept, conflict was often based on beliefs and assumptions best explained by organizational culture. This project's hypothesis is that mobility weapon systems adopt tactical or operation combat employment paradigms (assumptions and beliefs) that dictate subsequent combat education and training cultures. Cultural assumptions are a powerful force and govern attitudes and perceptions over organizational purposes, student attributes, graduate roles, and ultimately, proper combat employment skills, knowledge, and mindsets.

This project establishes if combat employment paradigms are integrated into AMWC's respective education and training cultures and also assesses organizational culture's impact on KC-135 combat employment education and training. The research results indicate MAF combat employment paradigms are integrated into respective cultures. Additionally, cultural conflict can constrain innovation and adaptation if individuals, offices, or units, are organized in countercultural structures. The project recommends an organizational structure that arranges education and training elements in culturally organized structures rather than functionally organized structures.

ORGANIZATIONAL CULTURE'S IMPACT ON KC-135 COMBAT EDUCATION AND TRAINING

I. Introduction

"If people believe things are real, they are real in their consequences"

-W. I. Thomas

Background

This graduate research project (GRP) is about a specific mission – the combat employment of the KC-135. To be even more specific, it is about organizational culture's impact on the education and training organizations established to ensure the USAF's air refueling forces are prepared for their combat employment role.

Over the last decade the USAF has enacted a dramatic transformation from a vision based on nuclear deterrence to one based on conventional expeditionary warfare. The KC-135 community, however, has encountered challenges adapting to this change. Interestingly, while many of the challenges associated with the combat employment of the KC-135 are well documented and understood, Air Mobility Command's (AMC) education and training response, a KC-135 Weapons Instructor Course (WIC), became a source of conflict – both within AMC and between AMC and outside organizations. Although re-envisioned as a KC-135 Combat Employment School (CES), many difficult issues remain unresolved: What are the most effective roles for the school's graduates? Where should graduates be assigned? What are the school's objectives? What is the school's relationship with other KC-135 combat education and training organizations?

And ultimately, how should the Air Mobility Warfare Center (AMWC) organize to best accomplish its KC-135 combat education and training mission?

The conflict persists because in many ways it is "larger" than the specific issues being discussed. The initiation of a non-traditional KC-135 WIC forced various USAF stakeholders to reconsider just what was meant, precisely, by terms such as weapons officer, tactics, and even the distinction between AMC's combat and movement roles. The result is a debate characterized along two, sometimes ambiguous, dimensions: (1) specific tasks and objectives for KC-135 combat education and training organizations and (2) beliefs, attitudes, and assumptions on how mobility weapon systems should best prepare for their respective combat roles and to what purpose mobility combat education and training organizations should be organized. Distinguishing between the two dimensions is difficult because they employ identical words, but often with different meanings attached.

This observation is best explained by the concept of organizational culture and the impact culture has on individual beliefs. Consequently, this GRP is based upon the theory and research techniques of Edgar Schein. Schein maintains that organizational cultures are comprised of basic assumptions and beliefs over what a group is doing and why it's doing it. Further, he maintains that each organization's culture evolves in a unique manner as the group seeks to solve specific environmental and internal problems.

Two important challenges can arise. First, cultural beliefs can become maladaptive if the external environment upon which they were formed changes. According to Schein, "… if the group encounters adaptive difficulties as its environment changes to the point where some of its assumptions are no longer valid, leadership comes into play once more.

Leadership now is the ability to step outside the culture that created the leader and to start evolutionary change processes that are more adaptive" (Schein, 1992). Second, different organizational cultures (beliefs and attitudes) can come into conflict with each other. "Much of the work of organizational development practitioners deals with knitting together diverse and sometimes warring subcultures, helping leaders, the dominant coalition, or the whole managerial subculture client figure out how to integrate constructively the multiple agendas of different groups" (Schein, 1992).

Problem Statement

"One of the critical roles of learning leadership, then, is first of all to notice changes in the environment and then to figure out what needs to be done to remain adaptive" (Schein, 1992). AMWC has developed several organizations to meet the KC-135 community's combat education and training requirements. However, do cultural attributes exist within AMWC's organizational structures forming the basis for conflict? Are organizational cultures constraining KC-135 combat employment problem solving, adaptation, and innovation? Ultimately, what courses of action (COA) can AMWC initiate to ensure its combat education and training organizations remain adaptive within the USAF's dynamic and transforming combat environment?

Research Objectives

This project is based on differences in how mobility weapon systems employ during combat operations. In this context, the word "employ" specifically means deciding the details of how combat missions will be planned, executed, and controlled. The research hypothesis is that different mobility weapon systems adopt either a tactical or operation

combat employment paradigm (assumptions and beliefs) and these combat employment paradigms dictate each weapon system's subsequent combat education and training assumptions and beliefs, or culture. Education and training beliefs are a powerful force and govern attitudes and perceptions over organizational purposes, student attributes, graduate roles, and ultimately, proper combat employment skills, knowledge, and mindsets. According to Schein, "A deeper understanding of cultural issues in groups and organizations is necessary to decipher what goes on in them, but even more important, to identify what may be the priority issues for leaders and leadership. Organizational cultures are created in part by leaders, and one of the most decisive functions of leadership is the creation, the management, and sometimes even the destruction of culture" (Schein, 1993).

The purpose of the project is to answer the following questions. Are weapon system combat employment paradigms integrated into their respective combat education and training cultures (beliefs and assumptions)? If so, how has organization culture impacted KC-135 combat education and training? In accordance with Schein's clinical research methodology, the research objectives are to accurately, capture, define, and present the cultures of AMWC's combat education and training organizations in a manner that facilitates analysis.

Project Organization

This project is organized into five chapters. Chapter 1 *Introduction* presents a brief background, the project's problem statement, and its research objectives. Chapter 2 *Literature Review* provides an environmental background on key KC-135 combat employment issues. Additionally, it introduces background on the nature of

organizational culture with an emphasis on Edgar Schein's methodology for defining organizational culture, analyzing cultures, the role of culture and conflict, and leadership's role in managing and/or changing organizational cultures. Chapter 3 *Research Methodology*, describes the methodology used in this project to capture the essence of various organizational cultures. It describes why the project's research candidates were chosen, which elements of organizational culture were captured, and describes Schein's clinical research methodology upon which this project is based. Chapter 4 *Results and Analysis* provides the results of the clinical research and an analysis focused on the project's research questions. Chapter 5 *Conclusions and Recommendations* summarizes the project's findings, and recommends courses of action (COA) and opportunities for further research.

II. Literature Review

"Unless every man is trained beforehand in peace for that which he will accomplish in war, one has nothing"

- Frederick the Great

Overview

This project is focused on organizational culture's impact on KC-135 combat employment education and training. Subsequently, this chapter is divided into two main parts. The first provides a background on KC-135 combat employment lessons and learned and their underlying environmental factors. The second provides a background on organizational culture theory and concepts.

KC-135 Combat Employment Background

This section provides background material on KC-135 Combat Lessons Learned, and their underlying environmental factors. Taken together, combat lessons learned and their environmental factors provide insight into the strategic objectives KC-135 combat employment education and training organizations should address. According to Schein, leaders of mature organizations " … must find many ways to be exposed to their external environment and, thereby, facilitate their own learning" (Schein, 1992). Thus, this section is designed to provide an assessment of the KC-135 combat employment environment.

KC-135 Combat Support Lessons Learned.

The lessons learned from KC-135 combat operations are well documented. Appendix A contains extracts that are drawn from the Vietnam Conflict, Operation DESERT

STORM, and Operation ALLIED FORCE. Although only an anecdotal review, the lessons documented in Appendix A fall into three consistent categories: (1) force sizing and beddown, (2) air refueling airspace design and congestion, (3) air refueling Special Instructions (SPINS), procedures and command and control. It's important to note that the lessons learned share two common attributes. First, KC-135 combat employment lessons are primarily concerned with operational-level issues rather than tactical or aircrew training issues. Second, KC-135 combat lessons learned have persisted from one operation to another despite efforts to resolve them and despite differences in each operation's theater, command organizations, and objectives.

The predominantly operational nature of KC-135 combat employment issues leads to the possibility that their respective education and training solutions should also exist at the operational level. Additionally, a collection of combat employment issues that consistently appear during different operations points to the possibility of systemic underlying factors. The next section provides underlying environmental factors that help to explain why similar KC-135 combat lessons learned consistently appear.

Underlying Environmental Factors.

The nature of US airpower changed with the end of the Cold War. The USAF faced a new multi-polar world as well as dramatically smaller budgets and less forward positioned forces. Two important and inter-related events resulted. First, the Air Force reorganized conventional forces along the broad specializations of combat and mobility. In June 1992, "The Air Mobility Command (AMC) was activated, merging the airlift assets of the Military Airlift Command and tanker capabilities of the Strategic Air Command (SAC)" (AMC, 2001). Almost simultaneously the USAF adopted a vision of

conventional expeditionary warfare known as Global Reach - Global Power as its new core competency.

> The Air Force was best positioned of all the services for Desert Storm but not necessarily for the end of the cold war. The traditional core mission of the Air Force had been strategic deterrence of the Soviet Union. That mission continued after the end of the cold wear since Russia and three other republics still had strategic nuclear weapons, but it dwindled as Russian weapons drew down toward Strategic Arms Reduction Talks (START) II limits. Foreseeing this loss of mission, the Air Force issued a new vision statement – Global Reach, Global Power – that promoted conventional, long-range power projection and precision bombing against regional threats. (Smith, 1998)

The KC-135's reorganization into AMC coupled with its new role in a conventional expeditionary force provided the basis for three environmental factors that impacted the KC-135's combat support capability. These factors are: (1) integration into the CAF's theater combat processes during contingency operations, (2) MAF responsibility for combat employment adaptation and innovation, and (3) development of an immature KC-135 aircrew tactics program.

Combat Integration. The USAF's need to specialize is unique among the military services. Specialization is driven by the Air Force's natural focus on technology coupled with the manner in which it organizes and trains its forces. Most Air Force wings are organized functionally, along the broad lines of combat or mobility. Functional organization is driven by efficiencies in logistics chains and flying training processes. The negative consequence of functional organization, however, is a corresponding loss of cohesion.

> The Air Force is the least cohesive of the services. One may attribute its fragmentation to the specialized nature of its technologies, the specialization of its wing structure, and the relative isolation of one specialized unit from the others. The basis of the problem is Air Force

> technologies, which are diverse and specialized; both efficiencies and effectiveness come from organizing around those unique assets. The operational Air Force mixes assets within operations, but units live apart and work in isolation until they join up en route to the operational target. Further, direct-support technologies that are integrated into the actual operation may be continents away at the time they are "interoperating" with a force. (Smith, 1998)

The Air Force has experimented with a composite wing structure in which both mobility and combat assets are assigned, for example the 366th Wing at Mt Home AFB, ID. The 366th Wing is comprised of F-15C, F-15E, F-16C, B-1B, and KC-135R aircraft. According to the wing's web site, "One of the primary benefits of a composite wing structure is aircrew train with the same people they fight alongside in combat. In a traditional wing, aircrew train with similar aircraft, except for a few annual exercises. In a composite wing, aircrew train every day under more realistic conditions, with a variety of aircraft flying multiple missions" (366 WG, 2002). However, according to Mt Home's public affairs office, the USAF is currently in the process of reorganizing both the KC-135s and the B-1Bs back to functionally organized wings. The remaining fighter aircraft will remain as a composite fighter wing (Thompson, 2002).

The Air Force, it seems, is committed to the specialized nature of its training wings. However, as the Mountain Home website alludes, the unintended cost of specialization is overcoming the associated challenges in integrating combat and combat support forces. The importance of MAF integration into theater combat processes is formally recognized in AFPD 10-21 *Air Mobility Lead Command Roles and Responsibilities*. "The Air Force designated Air Mobility Command as the lead command for the air mobility mission area, including airlift and air refueling. As such, AMC will manage and coordinate with the other commands involved in air mobility operations those processes designated below

to enable the interoperability of air mobility forces regardless of command" (AFPD 10-21, 1998). AFPD 10-21 specifically assigns AMC the following tasks.

> Take the lead in coordinating the technical review for all Service and joint air mobility doctrine. The lead command will, in coordination with other MAF commands, also develop tactics, techniques, and procedures necessary to effect air mobility force integration, to include complimentary and interoperable command and control procedures. (AFPD 10-21, 1998)

Responsibility for Combat Adaptation and Innovation. The KC-135 community has faced challenges anticipating, developing, and coordinating conventional combat aircrew procedures and operational level planning, execution, and C2 processes during peacetime. This issue is partially explained by the unified command structure and AMC's subsequent supported command relationships.

When KC-135s support functionally unified commands (USSTRATCOM, USSOCOM, USTRANSCOM), the supported commands share responsibility for peacetime innovation. For example, 15 AF and AMC are organized with permanent SIOP OPRs on their staffs (15 AF/DON and AMC/DOXPN). Additionally, USSTRATCOM has established tanker experts in its staff (J-36412). Innovation and adaptation are facilitated by of a well-coordinated body of tactics, techniques, and procedures documented in mission-unique regulations and instructions. Functionally unified commands not only direct the level of air refueling support required by their respective mission, they also share responsibility for the manner in which supporting KC-135s are planned, executed, and controlled.

In contrast, the combat support mission is shared by several regionally unified commands. Theater combat OPRs and regulations don't exist in the KC-135 wing or AMC staffs making coordination and feedback more difficult. Ultimately, primary

responsibility for peacetime KC-135 combat adaptation and innovation is shifted from supported commands to the supporting command (AMC). Consequently AFPD 10-21 provides the following "command- or mission –unique" directions.

> All other MAF commands will fully participate in the above processes to ensure needs are identified and policies are thoroughly formulated. Issues may be discussed and resolved at MAF conferences. **The MAF commands** [emphasis in original] will retain responsibility for accomplishing the above duties for command- or mission-unique equipment, modifications, and missions. (AFPD 10-21, 1998)

Developing Immature KC-135 Aircrew Tactics. The KC-135 aircrew training regulation prescribes an academic tactics course that includes a variety of topics such as the composite force structure, threat system capabilities, the unit mission brief (taskings under regional O-Plans), and use of an Air Tasking Order (ATO) and Special Instructions (SPINS). A disconnect exists, however, between aircrew tactical education and tactical flying training. Although tactical education covers energy management and defensive maneuvering, these concepts are not approved/incorporated into flight training. The result is a program where KC-135 aircrew can discuss defensive maneuvers as concepts, but are prohibited from executing or training to them in flight.

There are valid reasons for this situation. Defensive flying maneuvers can, at times, be more aggressive and riskier than normal procedures. Formally established procedures are the command's most effective method for moderating the risks inherent in any flying program, however, the KC-135 community hasn't yet developed procedures for its defensive maneuvers. Consequently, in the absence of a mature body of tactics, techniques, and procedures (TTP), KC-135 defensive maneuvers are specifically forbidden in training because they are deemed too risky.

A mature body of TTP is the result of an evolutionary process. As an illustration, KC-135 aircrew view the normal procedures incorporated in KC-135 flying manuals as the formal documentation of decades of KC-135 operational experience. Aircrew refer to the warnings and cautions incorporated in their flight manuals as "written in the blood of those who came before them" acknowledging years of combined operational feedback and lessons learned. Normal procedures have passed the test of time and, consequently, their utility and validity are rarely questioned. In contrast, KC-135 tactical procedures lack real world exposure and feedback because KC-135s haven't been successfully engaged during conventional combat. This is partially explained by Cold War employment in which tankers were rarely exposed to conventional threats. Additionally, the USAF has enjoyed a high degree of air superiority since the end of the Cold War. The result is an immature body of TTP, which are not "written in blood" and have not had sufficient operational feedback to instill validity and confidence. Consequently, KC-135 aircrew tactics remain the subject of considerable debate. Ultimately, although the KC-135 is in its fourth decade of use, its unique employment history has left the KC-135 community with an immature body of tactics, techniques, and procedures for dealing with the threats encountered during conventional combat operations. Ironically, however, conventional combat is now the USAF core competency.

According to AMC's Chief of Tanker Tactics, AFI 11-2KC-135V3 Table 17.1, *Tactics Maneuvers*, approves or prohibits specific tactical flying maneuvers. Three (Combat Departures, Combat Arrivals, Gun Jinks) are specifically prohibited. Three others, (Quick Flow Air Refueling, Retrograde Tactics, and Tactical Formation Breakups) are pending the development of command-approved procedures and inclusion

into air refueling manuals. These procedures don't exist yet and have not been included in appropriate flying manuals. Consequently these maneuvers are also, effectively, prohibited. Additionally, the KC-135 Threat Avoidance Arrival and Departure (TAAD) program has been revised from a tactical procedures program into a VFR flying skills program because the procedures' impact against threats remains inconclusive (Rowe, 2002).

Ultimately, the KC-135's future will be focused on the development and approval of tactical doctrine and procedures and their subsequent incorporation into training regulations. According to Major Rowe, the "tactical infrastructure" (doctrine, procedures, training programs) must be in place before the KC-135 aircrew tactics training program can evolve from its present conceptual format into a more rigorous flying program (Rowe, 2002).

Organizational Culture Background

The word, culture, has many different meanings that depend on context. Additionally, debate still occurs even within the more specific context of organizational culture. Most experts agree that the concept of organizational culture exists and yet disagreement over the precise meaning of organizational culture continues.

> Most people have a connotative sense of what culture is but have difficulty defining it abstractly. In talking about organizational culture with colleagues and members of organizations, I often find we agree "it" exists and that "it" is important in its effects but that we have completely different ideas of what "it" is. I have also had colleagues tell me pointedly that they do not use the concept of culture in their work, but when I ask them what it is they do not use, they cannot define "it" clearly. (Schein, 1992)

What, exactly, is meant by the term organizational culture? How does organizational culture affect the decision-making processes that govern the combat education and training of refueling forces? To answer these questions, I'll cover four attributes of organizational culture: (1) defining organizational culture, (2) analyzing organizational culture, (3) organizational culture and conflict, and (4) leadership and changing organizational cultures.

Defining Organizational Culture.

At first glance, the concept of organizational culture may appear "academic" and ineffective as a tool for identifying problems within highly structured military organizations. Since this project is focused on KC-135 combat education and training, a study of organizational culture will prove useful if it contributes to an understanding of the organizational decision making processes that govern these activities. While there are several models of organizational decision-making in current literature, military leaders would be most familiar with the rational choice model, which provides the theoretical platform from which a review of organizational culture departs.

According to the rational decision making model, decision makers should choose the option, or policy, that produces the greatest benefit over cost. According to Thomas Dye, "Rational policymaking also requires information about alternatives policies, the predictive capacity to foresee accurately the consequences of alternative policies, and the intelligence to calculate correctly the ratio of costs to benefits. Finally, rational policymaking requires a decision-making system that facilitates rationality in policy" formation (Dye, 2002).

USAF organizational decision-making processes are developed on the rational model because it offers a disciplined and effective means in which to simplify the complexity of the numerous problems USAF organizations face. The measure of merit for staff officers is to clearly explain problems, identify the possible solutions, and recommend a course of action to decision makers in the most succinct manner possible. In other words, USAF decision makers will recognize the rational choice model as the manner in which they've deliberately organized their staffs. According to Jeffrey Pfeffer, "The model of rational choice is prominent in the social choice literature. It is not only prescribed as being the best way to make choices in organizations, but frequently claims to be *descriptive* [emphasis added] of actual choice processes as well" (Pfeffer, 1981).

However, this model rests on several assumptions. Among these is the assumption that decision makers and their advisors are all in agreement on organizational objectives and are all behaving in accordance with a consistent set of assumptions and beliefs. "Behavior as not accidental, random, or rationalized after the fact; rather, purpose is presumed to pre-exist and behavior is guided by that purpose" (Pfeffer, 1981). Ultimately, the rational choice model relies on all members of the decision making process possessing a consistent set of beliefs. This, of course, leaves room for exceptions, misperceptions, and disagreements and is precisely where organizational intentions diverge from reality. "It is clear that in analyzing choice processes in organizations or other social collectives, the assumptions of consistency and unity in the goals, information and decision processes is problematic" (Pfeffer, 1981).

It seems the rational choice model provides effective organizational decision making guidance by providing an ideal to strive toward, but doesn't necessarily provide an

equally effective description of the decision making processes that always occur. Therefore, despite the rational choice model's effectiveness in guiding organizational decision making, its assumption of organizational consistency leads us to search for another model. If rationality is the ideal, and if organizations can reasonably be expected to fall short of the ideal, then there is utility in a decision making model that addresses those shortcomings. In other words, the rational choice model explains deliberate decision making processes but fails to address an organization's irrational decision making. Shafritz and Ott make this point, "… it is not necessary to choose between analytical frameworks. Each may be partly true in a particular situation, and one can obtain a better understanding of the organization by trying to use all of the models rather than by choosing among them" (Shafritz and Ott, 2001). The concept of organizational culture can be used to fill this void.

According to Edgar Schein, "The concept of culture is most useful if it helps to explain some of the more seemingly incomprehensible and irrational aspects of groups and organizations" (Schein, 1992). The previous section explained what Schein meant by "irrational" but exactly what did he mean by the term organizational culture? There are many similar but distinct opinions.

As early as 1974, researchers were referring to the term "organizational essence" which would later evolve into the mutually agreed term, "organizational culture." Morton Halpern referred to essence as "the view held by the dominant group in the organization of what the missions and capabilities should be."

> In some organizations the same view of the essence is shared by all those in the same promotion and career structure. In other cases there will be differences of view. The differences may concern the particulars of a broader agreed essence or may reflect struggles for dominance. In either

> case there are often conflicts among subgroups within a single career structure to define the essence of the organizations. (Harrington, 1996)

Cook and Yanow define culture as "… a set of values, beliefs, and feelings, together with the artifacts of their expression and transmission (such as myths, symbols, metaphors, rituals), that are created, inherited, shared, and transmitted within one group of people and that, in part, distinguish that group from others" (Cook and Yanow, 1993). James Q. Wilson referred to organizational culture as "those patterned and enduring differences among systems of coordinated action that lead those systems to respond in different ways to the same stimuli" (Wilson, 1989). He also stated culture is "to an organization what personality is to an individual" (Wilson, 1989).

Interestingly, this comparison between organizational culture and individual personality is common. According to Kilmann and others, "Culture is to the organization what personality is to the individual – a hidden, yet unifying theme that provides meaning, direction, and mobilization" (Shafritz and Ott, 2001). Although the analogy between organizations and individuals is a useful tool for comprehending the concept of organizational culture, it fails to provide a model or tool for assessing organizational decision-making processes.

Edgar Schein best addresses this weakness and provides much of the inspiration for this GRP. Interestingly, Schein reverts to the concept of 'essence' as a lead-in to culture. "Culture somehow implies that rituals, climate, values, and behaviors bind together into a coherent whole. This patterning or integration is the essence of what we mean by 'culture'. How then do we think about this essence and formally define it?" (Schein, 1992) Schein's formal definition shares many attributes with Cook and Yanow's

definition but elaborates more completely on culture's purpose and inherent functionality. According to Schein, organizational culture is:

> A pattern of shared basic assumptions that the group learned as it solved its problems of external adaptation and internal integration, that has worked well enough to be considered valid and, therefore, to be taught to new members as the correct way to perceive, think, and feel in relation to those problems. (Schein, 1992)

Three attributes of this definition deserve clarification: (1) basic assumptions, (2) problems of external adaptation (survival, growth), and (3) problems of internal integration (daily functioning and cohesion).

Basic Assumptions. An understanding of the power of basic assumptions is perhaps the most important contribution to comprehending organizational culture. Shafritz and Ott make the following observation regarding assumptions. "They become the underlying, unquestioned, but largely forgotten reasons for 'the way we do things here' – even when the ways may no longer be appropriate. They are so basic, so pervasive, and so completely accepted as 'the truth' that no one thinks about or remembers them. (Shafritz and Ott, 2001). Schein takes this thought even further, "Basic assumptions are so taken for granted that someone who does not hold them is viewed as crazy and automatically dismissed" (Schein, 1992). Additionally, "In fact, if a basic assumption is strongly held in a group, members will find behavior based on any other premise inconceivable" (Schein, 1992).

It's important to note that the development of basic assumptions is not accidental, nor does it occur in a random manner. Specific attributes of organizational cultures develop precisely because they are adaptive, or in the best interest of the organization. A culture evolves as the organization's history of shared learning synthesizes into a set of core

beliefs that help answer the fundamental questions of how the organization should accomplish its mission. Schein is not arguing that basic assumptions are inherently maladaptive or incompatible to rational thought. Quite the opposite, he instead makes the case that our basic assumptions evolve for rational reasons, namely to aid the organization with external adaptation and internal integration.

External Adaptation. Schein makes the following statement regarding an organization's need to adapt to external environments. "Cultural assumptions evolve around all aspects of a group's relationship to its external environment. The group's ultimate mission, goals, means used to achieve goals, measurement of its performance, and remedial strategies all require consensus if the group is to perform effectively" (Schein, 1992). Donaldson and Lorsch elaborate that this shared definition involves the maintenance of good relationships with the organization's major stakeholders. "Several studies of organizations have shown that the key to long-range growth and survival is to keep the needs of these constituencies in some kind of balance …"(Schein, 1992).

The initial development of the KC-135 CES provides an interesting example of a new organization that faced just such a balancing act. In particular, AMC/DOK, AMWC, the Combat Aerial Delivery School (CADS), the USAF Weapons School (USAFWS), and of course the KC-135 community, all perceived a stake in the organization's mission and objectives. According to the KC-135 CES' first commander, the challenge was to achieve balance among competing visions for the school. As such, initial organizational members referred to the unit as having a formal chain of command while simultaneously having an informal but influential, 'tree' or inverted chain of influence (Ifill, 2002).

Internal Integration. Basic assumptions are also important for organizations to manage the task of internal integration. "If a group is able to accomplish tasks that enable it to adapt to its external environment, it must be able to develop and maintain a set of internal relationships among its members" (Schein, 1992). This is a common theme throughout the literature on organizational culture. "According to the organizational culture perspective, meaning (reality) is established by and among the people in organizations – by the organizational culture" (Shafritz and Ott, 2001).

In *Reframing Organizations*, Bolman and Deal refer to four frames or 'perspectives' in which organizations can be analyzed: structural, human resource, political, and symbolic. Their symbolic frame incorporates the concept of organizational culture as a means of cohesion or internal integration. "Many of the most significant events and processes in organizations are *ambiguous* or *uncertain* – it is often difficult or impossible to know what happened, why it happened, or what will happen next. The greater the ambiguity and uncertainty, the harder it is to use rational approaches to analysis, problem solving, and decision making. Faced with uncertainty and ambiguity, human beings create *symbols* to resolve confusion, increase predictability, and provide direction" (Bolman and Deal, 1991). M. Douglas makes a similar argument in his book, *How Institutions Think*. "Culture as a set of basic assumptions defines for us what to pay attention to, what things mean, how to react emotionally to what is going on, and what actions to take in various kinds of situations" (Schein, 1992).

Finally, Schein elaborates on this concept by making the important point that agreeing on basic assumptions is a critical process for any collection of individuals to function as a group. "If several members of a group are using different category systems,

they not only cannot agree on what to do but will not even agree on their definition of what is real, what is a fact, when something is true or false, what is important, what needs attention, and so on" (Schein, 1992).

Analyzing Organizational Culture.

While many authors have contributed to the concept of culture, Schein stands alone in providing what he refers to as a 'clinical model' to transition from the abstract to an actual analysis of an organization's cultural attributes. "His [Schein's] definition is a model of three levels of culture, which is particularly useful for sorting through myriad methodological and substantive problems associated with identifying an organizational culture" (Shafritz and Ott, 2001). According to Schein, the levels at which culture can be analyzed are shown below.

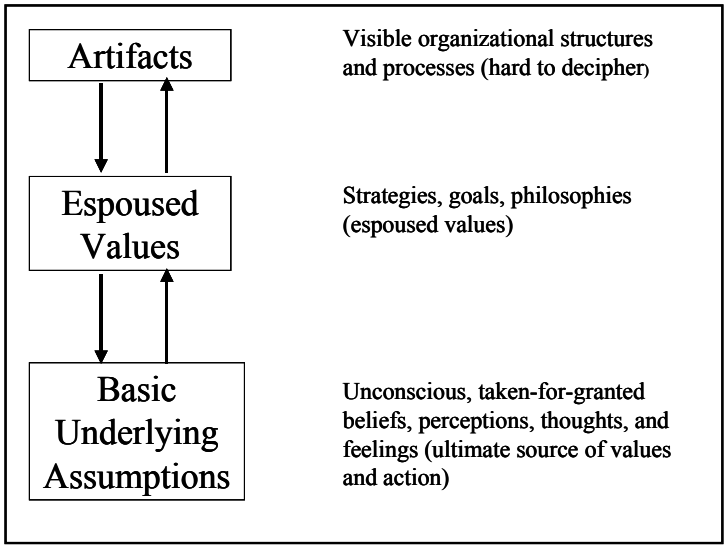

Figure 2.1. Levels of Culture

The first level of organizational a culture is its artifacts. Artifacts include all the obvious things we see, hear, and feel when encountering the organization. Artifacts

include the processes that make much of organizational behavior routine. It is important to note that while artifacts are the easiest level to observe, they are the most difficult to interpret.

> The Egyptians and the Maya both built highly visible pyramids, but the meanings of the pyramids in each culture was very different – tombs in one and temples and tombs in the other. In other words, the observer can describe what she sees and feels but cannot reconstruct from that alone what those things mean in the given group, or whether they even reflect important underlying assumptions. (Schein, 1992)

Espoused values include formally communicated strategies, goals, and philosophies. It is important to note that espoused values are those to which the organization claims to value but which may not be valued in fact.

> Values at this *conscious* [emphasis added] level will predict much of the behavior that can be observed at the artifactual level. But if those values are not based on prior learning, they may also reflect only what Argyris and Schön (1978) have called espoused values, which predict well enough what people will say in a variety of situations but which may be out of line with what they will actually do in situation where those values should, in fact, be operating. Thus, a company may say it values people and has high quality standards for its products, but its record in that regard may contradict what it says. (Schein, 1992)

Finally, there are basic assumptions. Basic assumptions are deeply embedded beliefs that tell organizational members how to perceive, think about, and feel about things. "Basic assumptions, like theories-in-use, tend to be those we neither confront nor debate and hence are extremely difficult to change. (Schein, 1992).

Schein argues that an organization's culture must be analyzed at all three levels. However, a grasp of artifacts and espoused values cannot stand alone, and instead should be considered as support for the ultimate goal – an understanding of the basic assumptions that form the essence of the culture. The first two levels of organizational culture (Artifacts and Espoused Values) are the easiest to identify because they are

formally recognized by the organization. Recognition in the USAF takes many forms such as formally published core beliefs, vision statements, doctrine documents, and Air Force Instructions (AFI). However, taken alone, they offer the least utility for explaining organizational behaviors. Basic assumptions, on the other hand, are the most difficult to discover because by their very nature, they are unconscious and taken-for-granted. However, it's precisely because assumptions operate below the threshold of conscious thought, that they have such a profound influence on organizational behaviors. Thus, while they are the hardest to establish, once detected, they offer the greatest utility. "…unless one digs down to the level of basic assumptions, one cannot really decipher the artifacts, values, and norms. On the other hand, if one finds some of those basic assumptions and explores their interrelationship, one is really getting at the essence of the culture and can then explain a great deal of what goes on in it" (Schein, 1992).

Schein also points out that large organizations can, and do, have unique sub-cultures existing within them. "Our experience with large organizations tells us that at a certain sizes, the variations among the subgroups are substantial, suggesting that it is not appropriate to talk of 'the culture' of IBM or a General Motors or a Shell Oil" (Schein, 1992).

Additionally, he argues that these subcultures have several attributes: (1) subcultures tend to evolve naturally as variations among an organization's subgroups become substantial, (2) the cultures of subgroups can be in conflict with each other, (3) the common, overall attributes of the main culture still exists, particularly when the organization faces a crisis. "In fact, as we will see, any social unit will produce subunits that will produce subcultures as a normal process of evolution. Some of these

subcultures will typically be in conflict with each other, as is often the case with higher management and unionized labor. Yet in spite of such conflict one will find that organizations have common assumptions that come into play when a crisis occurs or when a common enemy is found" (Schein, 1992). The concept of organizational sub-cultures leads to the next topic – organizational culture and conflict.

Organizational Culture and Conflict

The concept of organizational culture is most useful if it helps explain what we earlier termed "irrational" organizational behavior. Organizational culture theory explains behavior that *appears* irrational or incomprehensible in terms of fundamental differences (or conflicts) in the basic assumptions of organizational members. Basic assumptions are so taken for granted and unconscious that they can provide the basis for unintended misperceptions and ultimately conflicts between organizational members. Schein elaborates on this idea.

> … we continue to find it amazingly difficult to understand and justify much of what we observe and experience in our organizational life. Too much seems to be bureaucratic, or political, or just plain irrational … If we are managers who are trying to change the behavior of subordinates, we often encounter resistance to change at a level that seems beyond reason … If we are leaders who are trying to get our organizations to become more effective in the face of severe environmental pressures, we are sometimes amazed at the degree to which individuals and groups in the organization will continue to behave in obviously ineffective ways, often threatening the very survival of the organization. (Schein, 1992)

Interestingly, the concept of cultural conflict applies equally well to organizational subcultures. James Q. Wilson notes "The predispositions of members, the technology of the organization, and the situational imperatives with which the agency must cope tend to give the organization a distinctive way of seeing and responding to the world"

(Wilson1989). Notice the similarities between Wilson's words and these by Lt Col Smith as he describes the impact of technology and mission in the development of distinct Air Force subcultures. " … in the absence of a shared vision or sense of mission, Air Force officers turn to their occupations and the immediate units built around those occupations and the immediate units built around those occupations for their primary identification. This tendency is symptomatic of a fractured confederation of subcultures rather than a cohesive military service" (Smith, 1998).

Schein continues with the idea of sub-cultural conflict. "Ambiguity and conflict also result from the fact that each of us belongs to many groups so that what we bring to any given group is influenced by the assumptions that are appropriate to our other group" (Schein, 1992).

Schein provides an important distinction. There is nothing inherently maladaptive or irrational about a culture adopting basic assumptions. In fact, basic assumptions evolve in cultures precisely because they are rational and adaptive. By helping cultures solve the problems of external adaptation and internal integration, basic assumptions act as the 'glue' that helps bind the culture together. Ultimately, the utility of basic assumptions must be judged within the context in which they evolved. As Schein points out, however, basic assumptions operate below our awareness and consequently affect decision-making processes in situations and contexts outside those in which they evolved and for which they are potentially maladaptive. "If we understand the dynamics of culture, we will be less likely to be puzzled, irritated, and anxious when we encounter the unfamiliar and seemingly irrational behavior of people in organizations, and we will have a deeper

understanding not only of why various groups of people or organizations can be so different but also why it is so hard to change them" (Schein, 1992).

Leadership and Changing Organizational Culture

Most experts agree that organizational cultures are dynamic and are subject to certain levels of naturally occurring, incremental change. "As new members join the group, each acquires a sense of these meanings through the everyday practices in which the organization's artifacts are engaged. Through such 'artifactual interactions,' shared meanings are continually maintained or modified; these are acts that create, sustain, or modify the organizations culture" (Cook and Yanow, 1993).

This section, however, is focused on deliberate cultural changes that are initiated by organizational leaders. According to Trice and Beyer, cultural changes initiated by leaders differ from those that occur naturally because changes initiated by leaders are deliberate, and the magnitude of changes initiated by leaders tend to be more pronounced.

> We will reserve the term cultural change to refer to planned, more encompassing, and more substantial kinds of changes than those which arise spontaneously within cultures or as a part of conscious efforts to keep a culture vital. Culture change involves a break with the past; culture continuity is noticeably disrupted. It is an inherently disequilibriating process. (Trice and Beyer, 1993)

While Trice and Beyer offer sound advise for conceptualizing cultural changes, they begin with the assumption that organizational leaders recognize the need for change. Unfortunately the very unconsciousness of core beliefs that gives organizational cultures the power to adapt and integrate, can also blind organizational members and leaders to environmental changes which necessitate change. "A strong sense of mission may blind the organization to changed environmental circumstances so that new opportunities and

challenges are met with routinized rather than adaptive behavior. But even short of occasions for major organizational change, the perceptions supplied by an organizational culture sometimes can lead an official to behave not as the situation requires but as the culture expects" (Wilson 1989).

Schein also recognizes this leadership challenge. "The key issue for leaders is that they must become marginal in their own culture to a sufficient degree to recognize what may be its maladaptive assumptions and to learn some new ways of thinking themselves as a prelude to unfreezing and changing their organizations" (Schein, 1992). Ultimately, despite inherent difficulties, Schein argues that the development and subsequent modification of organizational culture is actually the all-encompassing purpose behind most leadership tasks.

> But as the group encounters adaptive difficulties, as its environment changes to the point where some of its assumptions are no longer valid, leadership comes into play once more. Leadership now is the ability to step outside the culture that created the leader and start evolutionary change processes that are more adaptive. This ability to perceive the limitations of one's own culture and to develop the culture adaptively is the essence and ultimate challenge of leadership. (Schein, 1992)

Interestingly, there is little prescriptive advice available for just how, exactly, a culture should or can be changed. This is consistent with the nearly universal observation that changing an organizational cultural is both difficult and often resisted by organizational members. "The underlying duality of creation and destruction that is required by innovation is often downplayed by those who preach it. But when innovation occurs, some things replace or displace others … People often resist such changes. They have good reasons to" (Trice and Beyer, 1993).

Trice and Beyer elaborate on the level of difficulty of organizational change by suggesting four dimensions along which a proposed change can be analyzed: (1) pervasiveness, or the proportion of the activities in an organization that will be affected by the change, (2) magnitude, or a change involving the distance between old understandings and behaviors and the new ones members are expected to adopt, (3) innovativeness, or the degrees to which the ideas and behaviors required by a desired culture are unprecedented or have some similarity to what already happened somewhere, and (4) duration, or how long a change effort is likely to take and how permanent the change will be (Trice and Beyer, 1993). They then categorize proposed cultural changes into three basic types based on where the change falls along the four dimensions and with each subsequent level more difficult to accomplish: (1) efforts that are gradual and incremental, (2) efforts confined largely to changing specific subcultures or subunits within organizations, and (3) revolutionary and comprehensive efforts to change the culture of the entire organization (Trice and Beyer, 1993).

Schein addresses resistance to change with the concept of unfreezing. In this context, unfreezing means creating a motivation and willingness to change within organizational members. He claims three distinct attributes must be in place to successfully unfreeze a culture: (1) enough disconfirming data to cause serious discomfort and disequilibrium, (2) the connection of the disconfirming data to important goals and ideals causing anxiety/or guilt, and (3) enough psychological safety, in the sense of seeing a possibility of solving the problem without loss of identity or integrity (Schein, 1992). The connection of disconfirming data and anxiety can be considered as identifying a negative effect and determining that organizational processes are the undeniable cause.

Additionally, motivation for change also requires organizational members to be able to imagine a needed change without feeling a loss of integrity or identity. Leaders provide this 'psychological safety' through a vision of the new way.

> Lorsch (1985) calls this same phenomenon strategic myopia and shows how organizational belief systems prevent leaders from contemplating strategies that do not fit the prior beliefs based on past success. Once a new leader provides a vision that permits the organization to see a way to solve the problem, to get back into equilibrium without losing its identity, the process of change can then proceed very rapidly because of the prior buildup of disconfirming data. (Schein, 1992)

This leads Schein to the development of six critical roles of leadership in strategy formulation and implementation. (1) perceive what is happening in the environment and to know what must be done to remain adaptive; (2) create disconfirming information to motivate organizational change; (3) provide psychological safety through a vision of how, and what direction, to change; (4) acknowledge uncertainty; (5) embrace errors as inevitable; and (6) manage all phases of the change process (Schein, 1992). The role of leadership and vision is echoed by Trice and Beyer, "Members are unlikely to give up whatever security they derive from existing cultures and follow a leader in new directions unless that leader exudes self-confidence, has strong convictions, a dominant personality, and can preach the new vision with drama and eloquence" (Trice and Beyer, 1991).

While Schein provides strategic advice for cultural change mechanisms, Trice and Beyer limit their advice to techniques designed to simply facilitate the process. Included are capitalizing on propitious moments and maintaining continuity along with changes. "Culture change is best initiated at propitious moments, when some obvious problem, or change in circumstances make change seem desirable" (Trice and Beyer, 1993). This advice compliments Schein's six critical roles of leadership in that a propitious moment

can be used as an effective tactic to create the disconfirming data needed to motivate organizational change. Maintaining continuity also helps overcome resistance by contributing to the psychological safety of organizational members. In Organizational Symbolism, J. Wilkins remarks, "One way to honor the past and maintain continuity is to identify the principles that will remain constant in the midst of turbulence, both internal and external" (Schein, 1992).

This chapter provided background material on the combat employment of the KC-135 and current theories on the definition of organizational culture, analyzing organizational cultures, culture's role in organizational conflict, and the role of leadership and change if cultures become maladaptive. The purpose of the next two chapters is to operationalize the concepts and theories presented in Chapter 2. Chapter 3 will establish which organizational cultures should be researched, which elements of the cultures are of relevance, and will develop a strategy for accomplishing what Edgar Schein describes as "clinical research" to identify the key organizational assumptions and beliefs which exist in AMWC's combat education and training organizations. Chapter 4 will present the results of the research.

III. Research Methodology

"It is not possible to remain objective or to leave the culture as one found it. One's very presence is an intervention, one's own role as an agent of change must become part of the analysis and written description."

-Edgar Schein

Overview

"The most efficient and possibly valid way to decipher cultural assumptions is for an outsider to work directly with a group of motivated insiders on a model of artifacts, values, and assumptions. This works best when the group has some purpose for conducting the cultural analysis and when there are no special communication barriers in the group that would prevent a free flow of communication" (Schein, 1992). Based on this premise, Chapter 3 has three main objectives directed at capturing relevant organizational cultural attributes: (1) to establish why the KC-135 CES, C-130 WIC, and the Tanker Planner Course (TPC) are the research organizations, (2) to establish which elements of organizational culture to capture, and (3) to develop clinical research strategies in accordance with Schein's clinical research methodology.

Establishing Research Organizational Cultures

Based on the theories reviewed in Chapter 2, it's relatively easy to propose a hypothesis that organizational culture has impacted the KC-135s combat employment education and training. What's difficult, however, is establishing which cultures are relevant to this project. From a broad perspective, one could argue that many of the USAF's sub-organizations could qualify as research candidates. One could nominate any

one of the KC-135 community's many stakeholders such as the USAF, ACC, AMC, USAFWS, AMWC, CADS, KC-135 CES, C-130 WIC, or the TPC. Unfortunately, attempting to research, comprehend, and document the relevant characteristics of these disparate organizations would be difficult and ultimately disappointing.

The research purpose, however, is to confirm or disconfirm if, " … different cultural assumptions aid or hinder what members are trying to do" (Schein, 1992). Three organizations, the C-130 WIC, the TPC, and the KC-135 CES were selected as research subjects based on two criteria: (1) the impact of combat employment paradigms, and (2) the relative recency of their organizational histories.

Combat Employment Paradigms

The decision to research the cultures of the C-130 WIC and the TPC is based primarily on key differences in which the two communities (KC-135 and C-130) employ their aircraft, especially when supporting or conducting combat operations. The origins of these differences lie in each community's unique technology and the missions to which their technology is applied. As Lt Col Smith said, "The fracture lines are real, and the technological and mission-diversity pressures tend to pull the Air Force apart" (Smith, 1998). Core assumptions on how aircrew employ their weapon systems exist throughout the Air Force and can be conceptualized as two basic paradigms – a tactical orientation and an operational orientation.

Using words that are remarkably similar to those which describe cultural attributes, Thomas Kuhn (1970) said science consists in solving puzzles within a framework of widely accepted beliefs, values, assumptions, and techniques. Kuhn called this shared framework a paradigm and considered it a lens through which we see the world (Dooley,

2001). The concept of a paradigm, or common perceptual framework, is particularly useful for this project because the project so deeply involves widely accepted beliefs, values, and assumptions. Schein elaborates on a similar use of simplifying paradigms, "Unless we have searched for the pattern among the different underlying assumptions of a group and have attempted to identify the paradigm by which the members of a group perceive, think about, feel about, and judge situations and relationships, we cannot claim that we have described or understood the group's culture" (Schein, 1992).

Kuhn also points out that paradigms are simplifying tools, and are not intended to explain all facts. "To be accepted as a paradigm a theory must seem better than its competitors, but it need not, and in fact never does, explain all of the facts with which it can be confronted" (Huntington, 1996). Edgar Schein makes a similar observation regarding a cultural analysis of two corporations. "Because I have only described certain elements of the cultures of two companies as they pertain to key goals that the organizations were trying to achieve, we should not assume these paradigms describe the whole cultures, nor should we assume that we would find the same paradigm operating in every part of the organization" (Schein, 1992).

This presents an important distinction. This project is not intended to define entire cultures. Instead, it is focused only of the beliefs and attitudes that impact the combat employment education and training of different Air Force weapon systems, or as Schein says, the "key goals that the organizations were trying to achieve." Consequently, while the project relies on simplifying paradigms it can still be useful if it presents an effective "lens" through which to perceive the basis for organizational beliefs and assumptions.

The distinction between how the C-130 and KC-135 communities employ during combat operations is important because it provides the foundation for differences in cultural attributes (attitudes, beliefs, and assumptions) on how a weapon system bests employs. By extension, attitudes, beliefs, and assumptions over how to best employ forces lead directly to attitudes, beliefs, and assumptions over how to best educate and train forces for their combat or combat support missions. Ultimately, a weapon system's employment beliefs and its associated education and training beliefs, must be consistent or they can prove maladaptive.

There are two attributes that describe a weapon system's combat employment paradigm. The first attribute is the organizational level (operational or tactical) at which the weapon system employs its forces. The term "employ" specifically means the level at which the weapon system community determines the details of how combat missions will be accomplished. The second characteristic is the degree of centralized control needed to accomplish the weapon system's combat mission. The answers to these basic attributes lead to a continuum of distinctly different, yet based on technology and mission requirements, adaptive sets of assumptions and beliefs.

The Tactical Paradigm. The CAF has primarily adopted the tactical paradigm in the conduct of its combat mission, although, depending on mission requirement, it is also adopted by some MAF weapon systems. Under the tactical paradigm, forces employ at the tactical level, using combat oriented processes and under limited centralized control. Once strategy is decided, operational level planners communicate objectives to forces through the Air Tasking Order (ATO), and in the process make the decision over *what* must be done. But it is tactical level mission planning cells that primarily decide the

details of *how* assigned missions are accomplished. The Tactical Paradigm requires aircrew level tactics and employment experts to plan the details of individual strike packages and missions. This paradigm is expressed in one of the Air Force's foundational doctrine documents, AFDD-2 *Organization and Employment of Aerospace Power.*

> The tactical level of aerospace warfare deals with how these packaged forces are employed, and the specifics of how engagements are conducted and targets are attacked, which are then executed by individual strike packages, flights or elements … Mission type orders (MTO) state the objectives to be accomplished but leave the detailed mission planning to the tasked units. Mission type orders can help the JFACC reduce "micro-management" when developing and transmitting the ATO … Tactical unit commanders and flight leaders determine the tactics employed to accomplish the missions at the unit level using decentralized orders. (AFDD-2, 2000)
>
> During the execution phase, the air component commander (ACC) maintains centralized oversight of all required changes to the ATO due to unforeseen events or enemy reactions … The execution of these missions is decentralized, as the individual aircrews have considerable latitude on the tactical details of how they accomplish their assigned missions. (AFDD-2, 2000)

Operational Paradigm. The MAF has adopted an Operational Paradigm in the conduct of its primary intertheater movement mission. Under the Operational Paradigm, employment decisions are made at the operational level under a high degree of centralized control. Mobility forces operate as a global logistics system in which individual aircrew naturally lack a "macro" operational viewpoint. Consequently, decisions regarding the employment of their forces must be centralized to limit internal friction and to ensure the efficiency of the entire system. The Operational Paradigm requires broadly experienced employment experts that have mastered the enroute

system's command and control relationships, procedures, and standards. These experts often tend to be senior company-grade officers or junior to mid-level field-grade officers because they must possess a broad, system wide, knowledge and skill set that extends beyond weapon system unique expertise. This paradigm is best expressed by AFDD 2-6 *Air Mobility Operations*.

> Air mobility is best managed as a system. Resolving and deconflicting air mobility requirements create the need to balance efficient and effective air mobility operations … Effective support for the geographic commander in chief's (CINC) mobility requirements demands the theater and CONUS-based forces form a global partnership. This partnership must operate as an integrated force with common planning, tasking, scheduling, and C2 systems. (AFDD 2-6, 1999)

> A high degree of tasking and execution control is centralized above the wing level, with an appropriately experienced air mobility commander to direct forces and respond as a system to mobility requirements … Proper employment of air mobility forces is dependent upon establishing a standardized set of tactics, techniques, and procedures that must be followed for the greatest effect in a resource constrained environment. (AFDD 2-6, 1999)

C-130 and KC-135 Combat Employment Paradigms. So far this discussion has presented a simplified view of employment decision making by positioning the CAF under the Tactical Paradigm and the MAF under the Operational Paradigm. This presentation applies well when the CAF is conducting its core combat mission and the MAF is conducting its core, intertheater movement mission (i.e. when tasked, planned, and executed by TACC). However, AMC's task is complicated because mobility assets must be equally effective whether they are conducting *intertheater* movement missions or *intratheater* combat missions. It is precisely under these conditions (mobility assets conducting combat missions) in which we find different variations on the basic tactical and operational themes.

For example when the C-130 community undergoes a change of operational control (CHOP) to combatant commands they will usually adopt the Tactical Paradigm. It's important to keep the root cause of this change in paradigms clear. In contrast to movement operations within TACC's enroute system, C-130 combat operations require the tactical-level skill sets adopted by the CAF (tactical-level mission commanders determining the tactics employed to accomplish specific missions). In other words, the C-130 *employs*, or decides the details of how to accomplish combat missions at the tactical level in support of combat operations and at the operational level when operating within TACC's enroute system. The C-130 community adopts the tactical paradigm during combat operations not because they support the CAF, nor because they fall under the operational control of the CAF. The C-130 community adopts the tactical paradigm due to fundamental changes in how their unique technology integrates into the USAF's combat processes.

In contrast to the C-130 community, the KC-135 employs under the operational paradigm when conducting combat operations. In other words, combat air refueling forces employ at the operational level, even when supporting CAF forces that are employing at the tactical level. However, the operational level planning, execution, and C2 processes for combat support are distinctly different from those of movement support missions.

> Air Force doctrine needs to distinguish between combat-support air refueling and other tanker roles. Combat-support refueling derives from a different process, requires different command and control systems, and yields a different product than other types of refueling. It derives from the aerospace assessment, planning, and execution process, a cyclical process with no defined finish short of an air campaign's conclusion. … By contrast, tankers are an integral part of the joint-movement process when supporting fighter deployments and air bridges for airlift, and when

> carrying cargo and passengers in an airlift capacity. This linear process has a defined start and finish that originates with a movement requirement and validation, and ends with pickup and delivery. (Lt Gen Begert, 1999)

Most KC-135 combat employment planning occurs in the early stages of a conflict when operational level planners develop refueling airspace, standards, and procedures. Operational level planners decide virtually all mission details to include mission routings, specific operating areas, operating altitude, arrival and departure times etc. During mission execution, KC-135 aircrew remain under a high degree of centralized control. The combat refueling system relies on operational-level mission executors because they possess the situational awareness over current and upcoming taskings needed to ensure the efficacy of the entire air refueling system.

As presented, AMC is the parent organization for two mobility assets (C-130 and KC-135) which can be expected to CHOP to combatant commands and subsequently must adapt to new external environments. But the weapon systems possess distinctly different technologies and missions and have adapted accordingly. According to this project's hypothesis, the C-130 community adopts the tactical paradigm while the KC-135 adopts an operational paradigm that is distinct from the operational processes employed by TACC. Therefore the three organizations discussed above, the C-130 WIC, the TPC, and the KC-135 CES provide effective research candidates because they share the common adaptive dilemma of integrating MAF weapon systems into CAF missions and processes but differ in the respective employment paradigms.

Formative Experiences

Edgar Schein claims that early experiences in an organization's evolution play a significant role in the formation of its culture. "In both cases the powerful influence of

early leaders and historical circumstance was evident. Cultural assumptions have their roots in early group experience and in the pattern of success and failure experienced by each of the two companies" (Schein, 1992). All three organizations are excellent research candidates because of their relative youth. The C-130 WIC was initiated by ACC in 1994, its first class was in1996, and it was reorganized under AMC in 1997. The KC-135 CES was initiated in 1998 and its first class was in 2000. The TPC was initiated in 1999 immediately after Operation ALLIED FORCE and its first class was also in 2000. Consequently, the formative experiences of all three organizations are relatively recent and remembered by organizational members.

Schein emphasizes the importance of early leaders (formal and informal) in the formation of organizational culture and consequently he values recency in cultural analysis.

> In the first stage, the founding and early growth of a new organization, the main cultural thrust comes from the founders and their assumptions. The cultural paradigm that becomes embedded if the organization succeeds in fulfilling its primary task and survives can then be viewed as that organization's distinctive competence, the basis for member identity, and the psychological "glue" that holds the organization together. (Schein, 1992)

Recency provides a research advantage because each unit's members will be questioned about the organization's formative experiences and leaders. "Although it may be difficult, even impossible, to study cultural origins and functions in ethnic units who's history is lost to antiquity, it is not at all impossible to study these matters in groups, organizations, or occupation whose history and evolution are available" (Schein, 1992).

Determining Cultural Elements

Having decided on the C-130 WIC, the TPC, and the KC-135 CES' respective cultures for this project's research, the next issue was to determine the cultural dimensions to be captured. Schein recommends applying the two main dimensions from his formal definition of culture as the basis of cultural research: (1) survival in and adaptation to the external environment and (2) integration of its internal processes.

External Adaptation

According to Schein, there are five essential elements to the concept of culture as a means of external adaptation:

1) Mission and Strategy: obtaining a shared understanding of core mission, primary task, manifest, and latent functions
2) Goals: developing consensus on goals, as derived from the core mission
3) Means: developing consensus on the means to be used to attain the goals, such as the organization structure, division of labor, reward system, and authority system.
4) Measurement: developing consensus on the criteria to be used in measuring how well the group is doing in fulfilling its goals, such as the information and control system
5) Correction: developing consensus on the appropriate remedial or repair strategies to be used if goals are not being met.

All five of Schein's elements of external adaptation were adopted for use in this project without any modifications.

Internal Integration

Schein also emphasizes the internally adaptive functions of culture, "What we ultimately find to be the culture of the group will reflect both externally and internally oriented processes. The processes that allow a group to internally integrate itself reflect the major internal issues that any group must deal with, as summarized below" (Schein, 1992). Schein's six elements of internal integration are:

1) Creating a common language and conceptual categories: If members cannot communicate with and understand each other, a group is impossible by definition.
2) Defining group boundaries and criteria for inclusion and exclusion: The group must be able to define itself. Who is in and who is out, and by what criteria does one determine membership?
3) Distributing power and status: Every group must work out its pecking order, its criteria, and rules for how members get, maintain, and lose power. Consensus in this area is crucial to help members manage feelings of aggression.
4) Developing norms of intimacy, friendship, and love: Every group must work out its rules of the game for peer relationships, for relationships between the sexes, and for the manner in which openness and intimacy are to be handled in the context of managing the organization's tasks. Consensus in this area is crucial to help member's manage feelings of affection and love.
5) Defining and allocating rewards and punishments: Every group must know what is heroic and sinful behaviors are and must achieve consensus on what is a reward and what is a punishment.
6) Explaining the unexplainable – ideology and religion: Every group, like every society, faces unexplainable events that must be given meaning so that members can respond to them and avoid the anxiety of dealing with the unexplainable and uncontrollable (Schein, 1992).

The purpose of this project is to identify elements of organizational cultures that have evolved for adaptive reasons. However, all three of the research organizations belong to the USAF and evolved with some common core beliefs fully instilled in members. Consequently, two of Schein's elements were modified to better fit the situation and one was dropped altogether.

For example, in Element 4, "developing norms of intimacy, friendship, and love", Schein speaks of establishing rules for "peer relationships and for relationships between the sexes". These issues, however, are formally prescribed by the military's well-established rules over fraternization and proper conduct. Therefore, there was little opportunity or need for the new organizations to develop a unique set of rules for themselves. The USAF's rules were already well known and accepted. However, during

discussions Schein ventures into related areas such as teambuilding and establishing and maintaining trust between organizational members. These elements seemed well suited to an analysis of military organizations, and so, based on this argument, element four was modified from "intimacy and love" to "trust and teamwork".

Element six, "explaining the unexplainable – ideology and religion" was modified for similar reasons. Although the subject doesn't seem to apply, Schein's discussion on the subject provides additional insight. He speaks of "critical incidents" and the roles of transformation and change. Consequently, element six was modified to "Critical Incidents". Critical incidents are, " … any major event that threatened survival, or caused reexamination or reformulation of goals or ways of thinking, or involved membership or inclusion issues" (Schein, 1992).

Finally, in Element 3, "distributing power", Schein explores the processes through which mere "aggregates of humans" allocate and distribute power as they evolve into an actual group. An assumption of this discussion is that the organization is developing from scratch and must establish these rules for itself and for its own reasons. Again, as formally established military units, the "organizational chart" and associated rank structures for the C-130 WIC, TPC, and KC-135 CES were predetermined. Consequently, this element was dropped from the research project. In hindsight, this decision can be critiqued due to the focus on *formal* power structures. Even within military units, there often arises an informal power structure, which wasn't fully addressed by the research. However, informal power was partially addressed under the elements of "establishing trust" and "rewards and punishments". The final research elements are documented below.

1. External environment elements: survival and adaptation
    1.1. Mission: primary purpose
    1.2. Goals: concrete objectives
    1.3. Means: tasks, methods
    1.4. Measurement: performance standards
    1.5. Correction: remedial or repair strategies

2. Internal integration elements: managing cohesiveness
    2.1. Boundaries: inclusion criteria
    2.2. Common Language: core words/concepts
    2.3. Trust/Teamwork
    2.4. Rewards/Punishments: formal and informal
    2.5. Critical Incidents: crisis/challenges

Determining Research Methodology

With the research organizations identified (C-130 WIC, TPC, and KC-135 CES), and the cultural elements determined as presented above, the final, and most problematic step, was to determine exactly how to "operationalize" or capture the theoretical elements of culture. Three issues had to be resolved in this step: (1) determining the proper levels of researcher and subject involvement, (2) developing an effective research strategy, (3) developing probing questions to elicit an organizational response. These issues are elaborated next.

Researcher/Subject Involvement

The first issue was determining the proper levels of researcher and subject involvement. Another way of conceptualizing this issue is in the level of quantitative or qualitative data sought. Figure 3.1 displays Schein's categories of organizational research.

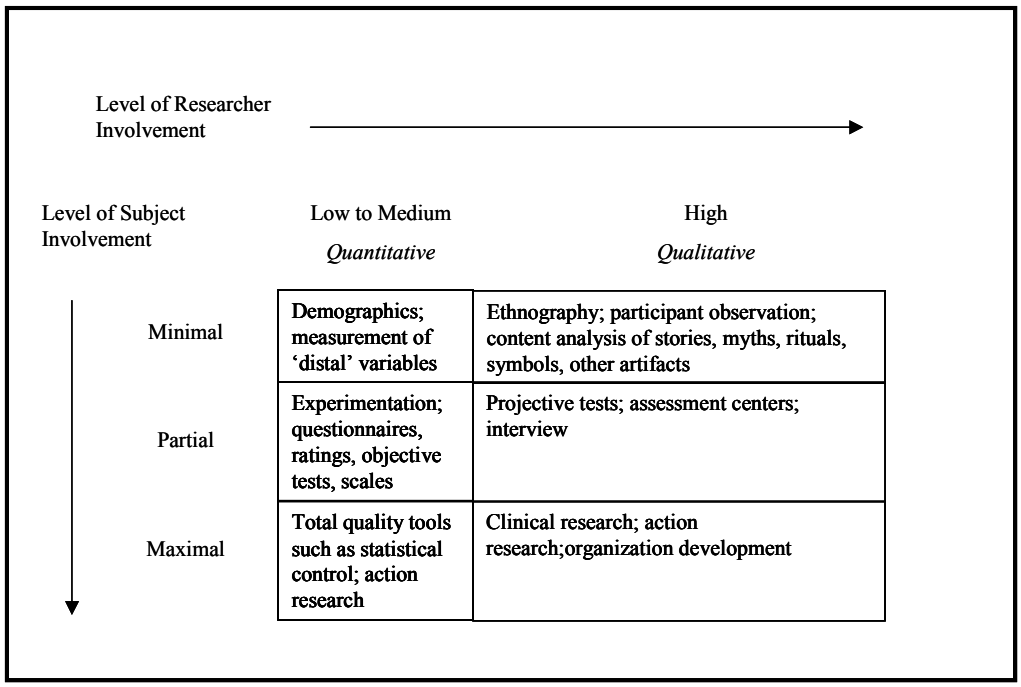

Figure 3.1. Schein's Categories of Research on Organizations

The initial effort of this project was erroneously directed toward the middle row. The strategy was to develop a scaled questionnaire to isolate, identify, and quantify cultural elements from each research organization. The objective was to employ a strict quantitative strategy to avoid any unintentional bias in the research. According to Feynman, scientific integrity consists of " … a kind of utter honesty – a kind of leaning over backwards" (Dooley, 1974). However, attempting to apply quantitative techniques to the subject of beliefs, attitudes, and assumptions proved problematic.

Interestingly, Schein cautions against this approach. "It is the middle row, where they are experimenting or giving various tests, that researchers are most at risk of getting invalid data and unwittingly harming the organization they are studying because they are typically working their own agenda and not paying enough attention to the consequences of their research interventions" (Schein, 1992).

Cultural research, by necessity, exists within the realm of the symbolic (unconscious and taken-for-granted assumptions). By definition, the researcher is trying to capture assumptions, beliefs, and attitudes that research subjects may not be fully aware of or may wish to distort or hide. Schein argues that surveys or questionnaires often fail to adequately analyze culture due to four main issues: (1) surveys best measure an organization's climate or norms, which are categorized as artifacts and don't reach the level of basic beliefs, (2) if a questionnaire is designed to get at cultural assumptions, how is the designer to know which of the many dimensions of a culture to build into the questionnaire? (3) even if the designer tried to cover all elements, its impossible to know which elements are important to the to the group in regard to a given issue, (4) a questionnaire assumes responses will be responsible and accurate. "There is no way of knowing whether a given group member is answering in terms of what she thinks someone is looking for, or whether she is doing her best to answer how she really perceives things … because cultural assumptions are tacit and have dropped out of awareness, it may be difficult for an individual to bring relevant data to the surface. She may answer to the best of her ability but still be unable to access what may really be going on" (Schein, 1992).

This problem presented itself in an early survey design attempt. The draft survey included over one hundred questions such as, "Formal processes exist to ensure graduates of this school are assigned to AOC billets during combat support operations" or "Training graduates to decide the tactical details of combat support operations is an objective of this school." Although intentionally designed to avoid culturally significant words, a peer review indicated the draft survey was indeed controversial. One problem

was the term "combat support operations". Although the words were intended as amoral, some members of the C-130 community perceived them negatively because of a core belief that their mission was "combat" and not "combat support". Ultimately the questionnaire was deemed invalid because of the inherent difficulties in predicting when or in what context certain words would have significantly different meanings or connotations.

Schein provided the solution by making a very powerful argument that only the organizational members themselves can really define their relevant cultural elements. He claims that the bottom right segment of Figure 3.1, (high subject involvement, high qualitative) provides the best option for effective cultural research.

> When we do not understand something, we need to pursue vigorously why we do not, and the best way to search is to use one's own ignorance and naïveté. This method of research, which I call clinical research, contrasts with various other research models that imply a lower level of involvement of the research subject. Although it is necessary to use all the research methods available when dealing with culture, the clinical method is central because only by involving the members of the group can one get at their deeper assumptions. The subjects must be motivated to reveal themselves, and this only occurs when they perceive themselves to be benefiting from the inquiry process itself. (Schein, 1992)

Research Strategy

Based on this guidance, the following strategy was adopted to capture the critical elements of organizational culture: (1) visit each organization and conduct a group meeting with organizational members, (2) provide a short lecture on the project's organizational culture concepts and the purpose of the research, (3) act as facilitator by probing and questioning the research participants, (4) rely on the research subjects to

identify and agree on what they perceive as their key cultural attributes, (5) document the group's results as well as significant comments that confirm or disconfirm the results.

The fourth point is important. Under this methodology, the researcher provides direction and probing questions, but ultimately, the organizational members themselves, identify and develop a consensus on their key cultural attributes. "The critical distinguishing feature of the clinical research model is that the data come voluntarily from the members of the organization because they initiated the process and have something to gain by revealing themselves to the clinician/consultant/researcher" (Schein, 1992). In comparing a clinical strategy with a strategy based on questionnaires, Schein notes, "Individual interviews or questionnaires are less useful and also less desirable because they take much more time and are less valid inasmuch as the outsider does not know initially what questions to ask and the individual often does not know how to answer" (Schein, 1992).

Developing Probing Questions

Cynthia Caroselli's informal group method provided a sampling of the type of leading questions to use, which she claims are designed to " … elicit 'what is' rather then 'what should be'" (Caroselli, 1992). Schein confirms Caroselli's observation. Ironically, although cultural research is directed at capturing values and assumptions, the process is best accomplished by avoiding questions aimed directly at member's values and assumptions, "The basic principle of interviewing is not to ask about values or assumptions. Not only are such questions likely to produce what the informant thinks is socially desirable and acceptable, but even if he or she is not motivated by social desirability, the informant is unlikely to be able to focus on those categories" (Schein,

1992). The questions used in this project are documented in Appendix B. The questions were intended only to keep the research subjects progressing by generating ideas and thoughts. I did not intend to ask all of the questions, and in fact didn't.

This chapter provided the basis for the project's research as well as the arguments supporting the choice of research organizations, the specific cultural elements, and the strategy used to operationalize theoretical constructs. The next chapter presents the research findings.

IV. Results and Analysis

"The main purpose of the resulting cultural description is to provide insight to the organization so that it can figure out how different cultural assumptions aid or hinder what members are trying to do"

-Edgar Schein

Overview

As was indicated in Chapter 3, cultural research, particularly the clinical methodology used for this project, is characterized as highly qualitative in nature and also requires a maximal level of subject involvement. The results are not intended to fully describe or depict an organizational culture. Instead the results, as interpreted by organizational members, exist only as a tool for further analysis, which is presented in the second half of this chapter

> The main purpose of the resulting cultural description is to provide insight to the organization so that it can figure out how different cultural assumptions aid or hinder what members are trying to do. It does not matter whether the outsider who facilitates the process fully understands the culture or not. The purpose is not to get a description to publish but to provide the group a useful mirror on itself. (Schein, 1992)

Additionally, the high level of subject involvement and researcher intervention in this research project led to another important attribute of the results - the active involvement and concurrence of organizational members. This involvement is important in a paradoxical manner. Traditionally researchers turn to quantitative measures to help ensure the validity of their results. However, as discussed in Chapter 3, this approach is problematic when researching basic, unconscious assumptions and beliefs. "If one operates from a traditional social psychological paradigm and relies on operational definitions, questionnaires, and other forms of objective data, the written description

tends to be fairly formalized by the criteria used by the main journals. The problem with this model is that it leads to more of an illusion of objectivity than actual objectively" (Schein, 1992).

Ironically then, the most effective manner to validate research on organizational assumptions and beliefs is to elicit the feedback and ultimately the concurrence of the research subjects. In contrast to traditional research methods in which impartiality is a means to validity, the clinical research approach used in this project instead looks to the other extreme. In essence, the results of the cultural research are valid when the organizational members, in an iterative process with the facilitator/researcher, say they are. "The only safe approach to such external deciphering is cross checking each bit of information obtained against other bits of information until a pattern finally begins to reveal itself. In this process, the dialogue between the insider and outsider is crucial. An important part of such cross checking is to test one's insights by seeing how members of the organization respond to one's own behavior and interventions" (Schein, 1992). Thus, the results produced in this chapter have been reviewed and accepted by the organizations and represent what they believe to be an accurate depiction of what they value and believe.

> If the organization fully understands what it is revealing and if the information is accurate, no harm is done. But if the case reveals material that the organization is not aware of, such publication can produce undesirable insight or tension on the part of members and can create undesirable impressions on the part of outsiders. If the information is not accurate, then both insiders and outsiders may get wrong impressions and may base decisions on incorrect information. (Schein, 1992)

The results are organized along the three levels of culture described in Chapter 2. Since this project, is primarily concerned with basic assumptions, they are documented in this chapter while artifacts and espoused values are documented in Appendix C.

Results

Basic assumptions are documented in this section because they are the focus of the research questions. In accordance with Schein's technique, basic assumptions are presented in the form of a paradigm diagram to indicate the organization's central belief and the relationships between beliefs. "This essence can sometimes be analyzed as a paradigm in that some organizations function by virtue of an interlocking coordinated set of assumptions. Whereas each one alone might not make sense, their pattern explains the behavior and the success of the organization in overcoming its external and internal challenges" (Schein, 1992).

Figures 4.1, 4.2, and 4.3 present the TPC, C-130 WIC, and KC-135 CES organizational cultures respectively. The cultures are presented in paradigm form in keeping with Schein's technique.

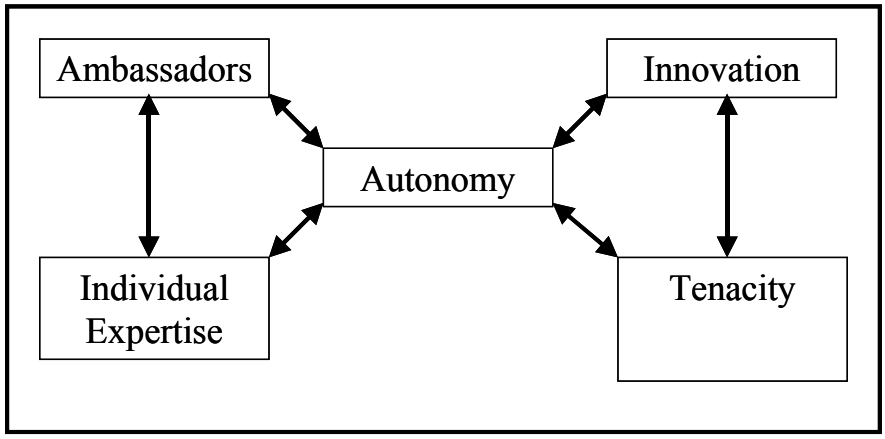

Figure 4.1. Tanker Planner Course Cultural Paradigm.

1. AUTONOMY: We are the experts in a highly specialized field - our organization is most effective when it's empowered to define and execute its mission.

2. INDIVIDUAL EXPERTISE: We are a specialized organization - success requires the expertness of each role occupant.

3. INNOVATION: We are fully integrated and accepted into CAF operational processes – organizational success requires us to develop/formalize those processes that exist under the MAF's control.

4. TENACITY: Our competencies exist beyond our parent command's core expertise and control - our organization must actively advocate our concerns/issues to mobility decision makers.

5. AMBASSADORS: Our graduates represent the MAF in an AOC – credibility is earned through an organizational focus on continuity, preparedness, and advocacy.

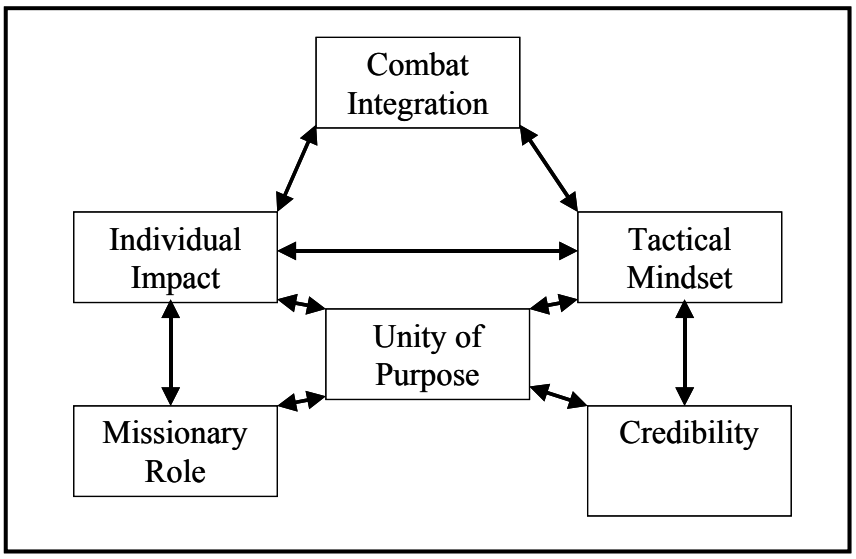

Figure 4.2. C-130 WIC Cultural Paradigm.

1. UNITY OF PURPOSE: The USAFWS model is proven and valid – organizational effort must remain focused to succeed.

2. TACTICAL MINDSET: Organizational and combat success requires expertise in weapon system tactics, problem solving, and advocacy.

3. CREDIBILITY: The USAFWS patch represents our purpose and signals our credibility to outsiders – organizational effectiveness is closely integrated with possession of the USAFWS patch.

4. MISSIONARY ROLE: We possess knowledge and skills that don't exist in our community or parent command—our organization has a core responsibility to "spread the word".

5. INDIVIDUAL IMPACT: Organizational success relies on "agents of change" impacting the outside world – graduates must think for themselves and "make an impact".

6. COMBAT INTEGRATION: Our graduates possess a unique set of tactical skills, knowledge, and beliefs that facilitate the integration of our weapon system into combat operations.

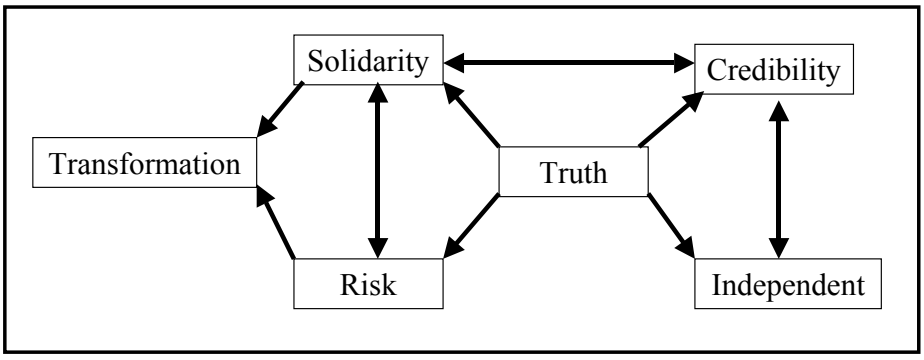

Figure 4.3. KC-135 CES Cultural Paradigm.

1. TRUTH: We are honest seekers of the truth - truth is discovered through research, internal debate, and testing.

2. INDEPENDENT: We must critically develop our doctrine and TTP - indiscriminately adopting concepts based on the technologies and missions of outsiders is prone to error and repeats the mistakes of the past.

3. CREDIBILITY: The strength of our organization lies in its credibility - we must deliberately focus on the concepts that prove adaptive to our specific technology and mission.

4. SOLIDARITY: Organizational members may disagree internally but must present a consistent "truth" to the outside world.

5. RISK: Organizational members must be willing to choose "truth" over personal expedience when truth conflicts with the beliefs of outsiders/stakeholders.

6. TRANSFORMATION: Organizational success requires students to reform/replace old "truths" with our values and beliefs as they interact with the outside world.

Analysis

The previous diagrams present the results of the research in the strictest sense. However, as stated earlier, the importance or meaning of the results isn't apparent until they are placed into the context of organizational objectives. Schein reinforces this concept below.

> To put this in the proper perspective, we must remember that cultural assumptions are the product of past successes. As a result they are increasingly taken for granted and operate as silent filters on what is perceived and thought about. If the organization's environment changes and new responses are required, the danger is that the organization will not be able to adapt because of embedded routines based on past successes. Culture constrains strategy by limiting what the CEO and other senior managers are able to think about and what they perceive in the first place. One of the critical roles of learning leadership, then, is first of all to notice changes in the environment and then to figure our what needs to be done to remain adaptive. (Schein, 1992)

As has been pointed out previously, organizational cultures in and of themselves have little meaning to leaders. However, they have great meaning if they constrain or hinder what leaders, and subsequently, organizational members are trying to accomplish. According to Schein, disconfirming information is critical to remaining adaptive if it can motivate organizational change without creating too much anxiety. "Disconfirming data are any items of information that show the organization that some of its goals are not being met or that some of its processes are not accomplishing what they are suppose to" (Schein, 1992). This is accomplished by identifying the attributes of the research results presented in Chapter 4 and Appendix C that somehow constrain organizational efforts to achieve the strategic education and training issues identified in Chapter 2. "This problem or issue is usually stated in the form of some new strategic direction in which the

organization wishes to go, so the assumptions can then be analyzed in terms of which ones will help and which ones will hinder in the achievement of the new objective" (Schein, 1992).

Research Question 1

Are weapon system combat employment paradigms integrated into their respective combat education and training cultures? The Operational Paradigm was consistently evident in the TPC's culture.

(1) Artifacts. The TPC is organized in the Operations Directorate via Det-1. All three organizations have operationally oriented mission statements emphasizing, "doctrine, operational level war planning and execution, and AOC integration" (AMWC, 2002). The TPC course description states the course produces graduates, " … who possess the knowledge and skills necessary to provide tanker expertise in any Air Operations Center" (AOC) (ETCA, 2002).

(2) Espoused Values. An espoused value that was highly regarded by TPC members was their close proximity to ACC's command and control organizations at Hulbert Field FL. Members felt their physical location helped them establish working relationships with the CAF and facilitated integration into operational level combat processes.

(3) Beliefs and Underlying Assumptions. The underlying assumption of operational level combat employment and integration was evident in the cultural beliefs of "Innovation" and "Ambassadors" in which TPC member's stressed the operational role of their graduates.

Similarly, the Tactical Paradigm was consistently evident in the C-130 WIC's culture.

(1) Artifacts. The C-130 WIC is organized in the Combat Aerial Delivery School (CADS). Both organizations have tactically oriented mission statements emphasizing, "weapons officers, instructor capabilities, flying skills, and expertise in combat employment" (AMWC, 2002). The C-130 WIC course description states its, "graduates are qualified combat aerial delivery weapons and tactics instructors capable of implementing, conducting, and supervising weapons training programs within their units to and including headquarters level" (ETCA, 2002).

(2) Espoused Values. An important espoused value of the C-130 WIC is its relationship and validation by the USAFWS. This is evidenced by their commitment to the USAFWS academic model and is symbolized by the USAFWS patch and "W" AFSC prefix.

(3) Beliefs and Underlying Assumptions. The underlying assumption of tactical level combat employment and integration was evident in the cultural beliefs of "Tactical Mindset" and "Combat Integration".

Finally, during interviews members of both units were asked to identify which combat employment paradigm described their courses' orientation. TPC members identified the operational paradigm as their primary combat employment paradigm and C-130 WIC members identified the tactical paradigm. The answer to the first research question is, yes, the combat employment paradigm adopted by the C-130 and KC-135 weapon system communities is integrated into their respective combat education and training cultures as evidenced by their organizational artifacts, espoused values, and basic assumptions.

Research Question 2

How has organizational culture impacted KC-135 combat education and training? Conflicting tactical and operational assumptions were evident in the KC-135 CES' culture.

(1) Artifacts. Although the KC-135 community employs under the operational combat employment paradigm, the KC-135 CES is organized within CADS, a tactically oriented chain of command. The KC-135 CES course description states they produce, "graduates who possess the knowledge and skills necessary to provide expertise in all aspects of KC-135 employment at the squadron, wing, and headquarters level" (ETCA, 2002).

(2) Espoused Values. Members of the KC-135 CES were ambiguous toward the relationships that were highly valued by the other organizations (CAF or the USAFWS).

(3) In contrast to the other organizations, the beliefs documented in Figure 4.3 do not reveal a clear tactical or operational bias. The group's self professed central belief was "Truth" which is "discovered through research, internal debate, and testing." Associated beliefs were "Independence" which included "critical reasoning" and "Solidarity" or a "united front". These beliefs are consistent with an organization that developed within countercultural structures and was subject to conflicting beliefs and assumptions.

Organizational culture impacts KC-135 combat education and training in two ways. First, AMWC's current functional organization creates units with members that possess countercultural combat employment beliefs. Second, the KC-135 CES has retained a tactically oriented legacy from its early inception as a WIC even as its members have pursued a more operational focus. Two distinct conflicts result: (1) conflict between the

KC-135 community's operational paradigm and the KC-135 CES' tactically oriented artifacts, and (2) conflict between KC-135 CES learning objectives and those of the TPC and CATT.

AMWC's Functional Organization. AMWC's combat education and training organizations are functionally organized. This is an intuitive method and compliments the structure adopted by most military staffs. However, AMWC is comprised of members of distinctly different weapon systems and subsequently different education and training cultures. A functional structure attempts to integrate members of different weapon systems to accomplish similar tasks. As individuals from different weapon system cultures come into contact, however, their basic combat education and training beliefs and assumptions will conflict to varying degrees.

> If we are leaders who are trying to get our organizations to become more effective in the face of severe environmental pressures, we are sometimes amazed at the degree to which individuals and groups in the organization will continue to behave in obviously ineffective ways, often threatening the very survival of the organization. As we try to get things done that involve other groups, we often discover that they do not communicate with each other and that the level of conflict between groups in organizations and in the community is often astonishingly high. (Schein, 1992)

Figure 4.4 presents a notional picture of the core combat education and training functions that AMWC accomplishes along the vertical axis, with different weapon system cultures (C-17, C-130, KC-135) along the horizontal axis. This diagram intentionally avoids identifying specific units, and instead focuses only on the functions that need to be done.

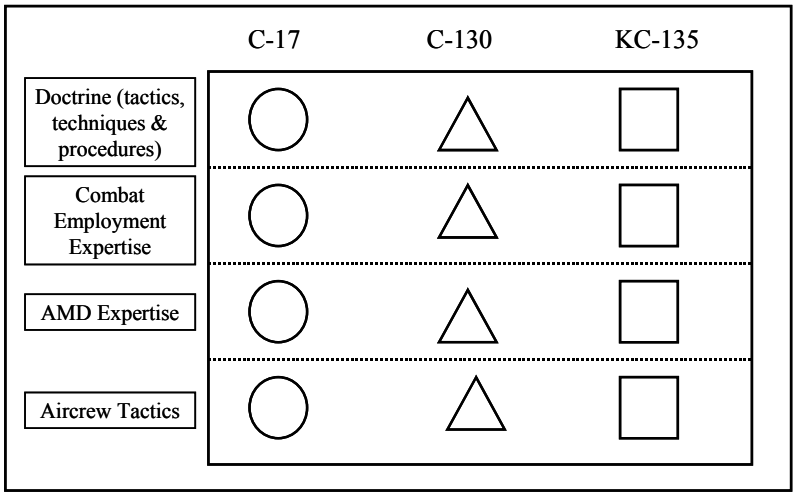

Figure 4.4. AMWC Combat Education and Training Functions

Under AMWC's present organizational structure, functionally organized experts must overcome or minimize the impact of cultural conflicts. Functions may be accomplished by individuals (doctrine), small units (aircrew tactics or AMD expertise), or even complete chains of command (combat employment expertise), but in all cases functional experts are responsible for the combat innovation, adaptation, education, and training of multiple MAF weapon systems.

Often, however, a functional organization hinders innovation and adaptation. In fact, a functional organizational structure is sometimes intentionally adopted to mitigate or diminish the effects of environmental change. " … leaders try to cope by seeking to impose order, organization, and focus but at a high price: a lack of innovation" (Gryskiewicz, 1999). In his book, *Positive Turbulence*, Stan Gryskiewicz argues organizations should adopt the opposite strategy. "The task for visionary leaders is to create an environment where new information is embraced, not feared. On a tactical level, this means establishing mechanisms for finding new information and ushering it into the organization, and then putting that new information into the hands of people who

can best make sense of it" (Gryskiewicz, 1999). In speaking of organizational culture and leadership, Schein makes a similar argument.

> Much has been said about the need for vision in leaders, but too little has been said about their need to listen, to absorb, to search the environment for trends, and to build the organization's capacity to learn. Especially at the strategic level, the ability to see and acknowledge the full complexity of problems becomes critical. The ability to acknowledge complexity may also imply the willingness and emotional strength to admit uncertainty and embrace experimentation and possible errors as the only way to learn. (Schein, 1992)

The KC-135 CES' tactically oriented legacy. Organizational culture has impacted the KC-135 CES in two ways. First, the course's tactical artifacts and specifically their associated underlying assumptions conflict with the KC-135 community's operational combat employment paradigm. The course was originally conceived under CADS as a KC-135 WIC. CADS' mission is tactically oriented and focused on educating and training weapons officers for duty as a unit's "instructor of instructors". "AMC's WICs are tasked to produce graduates possessing the instructor abilities, knowledge, and flying skills, necessary to provide expertise in all aspects of combat employment" (AMWC, 2002).

An emphasis on aircrew instructor abilities, however, incorporates two tactically oriented underlying assumptions. First, an "instructor of instructors" employment expert is based on the assumption the combat employment decisions are made at the tactical (squadron) level, but the KC-135 community employs at the operational level during combat. Second, an emphasis on tactical aircrew flying skills relies on the assumption of a mature aircrew tactics foundation. As stated in Chapter 2, though, KC-135 aircrew

tactics are immature, conceptual in nature, and prohibited in flight. This greatly constrains the role of a KC-135 tactical "instructor of instructors".

As the course adopted a more operational outlook, it broadened the anticipated roles of its graduates. However, the original tactically oriented roles in squadrons and wings were retained as new operationally oriented roles were adopted. The result is a course description that states graduates should provide, "expertise in all aspects of KC-135 employment at the squadron, wing, and headquarters level" (ETCA, 2002). Additionally, organizational members strongly believed graduates should have leadership roles in an AMD. This begs the following questions. Do positions exist at squadrons, wings, headquarters, and AOCs that require the same set of skills and education? If the KC-135 community employs at the operational level, is there a need for squadron level employment expertise? Finally, is there a common set of applicants that can fulfill all of these potential roles?

The KC-135 CES' mixture of tactical and operational learning objectives conflict with those of the TPC and CATT. Specifically, the KC-135 CES has blocks of instruction that are similar to those being taught by the TPC and which must be carefully coordinated to ensure consistency. AMWC's Director of Operations recognizes this challenge noting that the KC-135 CES has also sent observers to the CATT course to ensure consistency and to address learning objective differences that exist between the two organizations. Currently, both organizations instruct aircrew tactics, however, since the KC-135 community lacks a mature tactics foundation the organizations have adopted different and potentially conflicting programs (Gillette, 2002).

Ultimately, the KC-135 CES acquired broadly defined, and at times, countercultural learning objectives and graduate roles because it was conceived in a tactical chain of command with many tactical artifacts, values, and assumptions in place. The school has attempted to develop a culturally consistent operational orientation, however the transition has occurred incrementally. The result is a cultural "mixed bag" of artifacts, values, and beliefs that in some contexts have proven maladaptive.

This chapter focused on presenting the research results and an analysis that provided what Schein calls, disconfirming information. Disconfirming information is intended to show how cultural assumptions hinder or constrain organizations in the accomplishment of their objectives. By its nature, disconfirming information illuminates culture's maladaptive role, in particular it demonstrates culture's power to cause organizational conflict. However, culture can also serve as an innovative and adaptive force. Schein makes the following observation about the power of cultural assumptions and beliefs to bind organizations together.

> Once there is some consensus on what the shared assumptions are, the discussion proceeds to the role of those assumptions in aiding or hindering what the group wants to do. At this point the consultant must be careful to ensure a balanced discussion because of a tendency to quickly identify a constraining assumption and pit all the energy into figuring out what to do about it. As previously stated, one of the biggest insights for the group comes from seeing how some of the assumptions will aid them, creating the possibility that their energy should go into strengthening those positive assumptions instead of worrying about overcoming the constraining ones. (Schein, 1992)

Culture's power to facilitate innovation and adaptation is presented in Chapter 5.

V. Conclusions and Recommendations

"To develop anything, the underlying thought and reason must govern, and then the organization must be built up to meet it"

- Brigadier General William "Billy" Mitchell

Overview

The USAF has organized its conventional forces along the broad lines of combat and mobility. The word "mobility" provides a powerful description of AMC's combined capabilities. However, without care, many important distinctions are lost under the guise of a common "mobility family". Often, distinctions between airlift and air refueling or movement and combat are blurred or lost altogether. These distinctions are driven by differences in technologies and missions and result in unique sets of artifacts, values, and basic assumptions, which are known as organizational cultures.

Conclusions

This research project has been focused on one particular subset of the total mobility spectrum – the combat employment of the KC-135. The research results confirm the project's hypothesis that the basic combat employment paradigms adopted by specific weapon systems are integrated into a powerful set of associated combat education and training beliefs. Specifically, the manner in which a weapon system employs its forces during combat will fall under either a tactical or operational paradigm. Subsequent beliefs over combat education and training are synchronized with these paradigms and affect core education and training issues such as student attributes, graduates' roles, and ultimately, proper combat employment skills, knowledge, and mindsets.

The analysis in Chapter 4 searched for evidence of organizational culture's impact on KC-135 combat education and training. Disconfirming information was presented in the form of two issues. First, AMWC has adopted a functional organization. A functional structure organizes individuals from different weapon system cultures to accomplish similar tasks. This is problematic from a cultural standpoint because individuals must overcome conflicting cultural beliefs. In this context, culture can become a constraining force on innovation. As Schein remarks, "…they [leaders] may destroy innovative efforts that arise within their organizations if those innovative efforts involve countercultural assumptions" (Schein, 1992).

Countercultural assumptions also impacted the KC-135 CES directly, as it transitioned from a tactically oriented WIC model to a more operationally oriented combat employment model. When originally conceived as a WIC, the organization was organized in the CADS chain of command. However, the KC-135 community's basic operational paradigm and CADS' tactical combat education and training beliefs are countercultural. Subsequently, as the KC-135 WIC evolved into an operationally oriented program it retained maladaptive artifacts and assumptions from it's tactically oriented founding. As an operationally oriented school with a tactical legacy, the school currently attempts to provide employment experts for many disparate positions including squadrons, wings, headquarters, and AOCs. Consequently, the school has adopted education and training objectives that at times conflict with those of other KC-135 combat education and training organizations (TPC and CATT).

Recommendations for Action

The major implication of this project is that cultural beliefs play a powerful role in KC-135 combat education and training. Depending on context, culture can aid or constrain organizational members from accomplishing their objectives. The analysis in Chapter 4 presented culture's maladaptive power. The following recommendation is based on culture's equally powerful capacity to bind functionally distinct organizations together and in the process enhance creativity and innovation.

The Center of Excellence (COE) concept provides a vision that addresses this innovative power by providing a culturally centered organizational structure. Figure 5.1. depicts a functional structure in which counter cultural individuals and organizations are grouped together to perform common tasks.

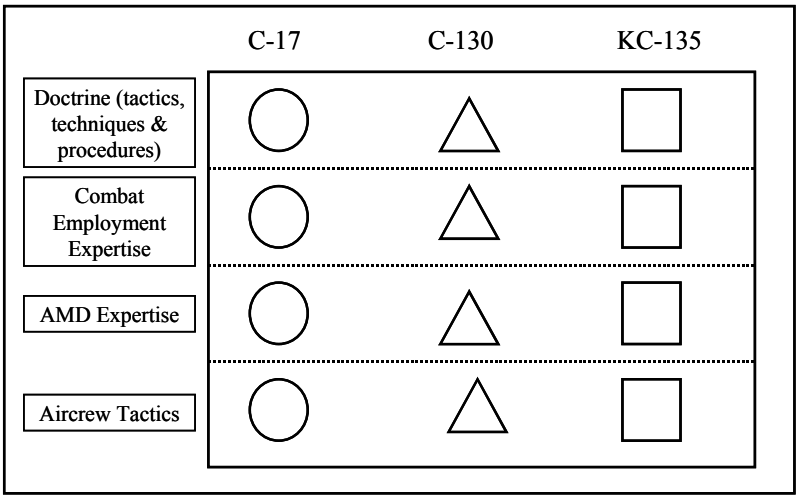

Figure 5.1. Notional AMWC Functional Organization

Under the COE concept, however, each weapon system's combat education and training experts are organized into a single focused COE. The result is a culturally unified organization in which members share a common vision for the solutions to weapon system-specific problems that require innovative and adaptive solutions. A notional COE organization is reflected in figure 5.2.

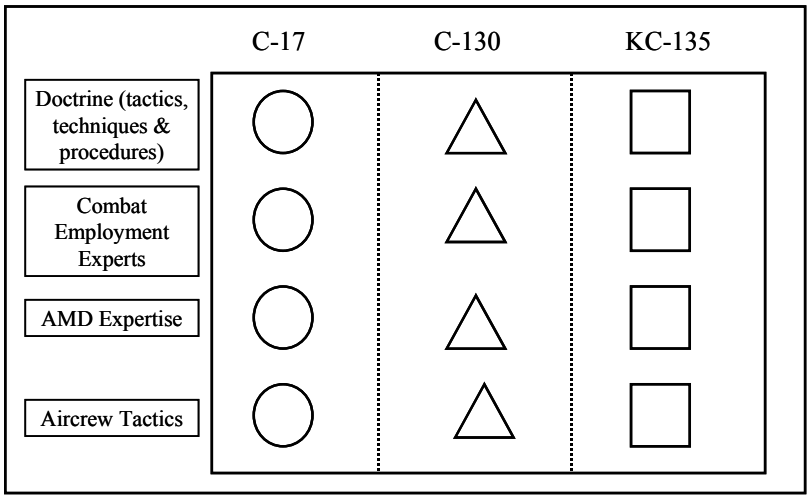

Figure 5.2. Notional AMWC COE Organization

The following text is authored by the Center of Excellence in Disaster Management & Humanitarian Assistance. Despite the differences in mission between this COE and AMWC, the two organizations share many attributes: complex problems, dynamic environments, operational and academic roles, functionally distinct elements unified by a common strategic vision.

> Centers of Excellence are traditionally formed as trusted partnerships to seek solutions to a problem for which no one single organization acting alone has the capacity to resolve. Centers of Excellence are composed of many organizations which partner together to develop solutions and chart a course of action. An academic affiliation is key to facilitating the necessary research and scholarly approach to real world problems. Therefore, Centers of Excellence are not an end to themselves, but a means to achieve consensus that ensures a measure of success to a complex issue. (COE-DMHA, 2002)

Interestingly, adopting a COE organizational structure to replace a functional organization meets Schein's requirement for "psychologically safety" because it only requires a reorganization of pre-existing individuals and capabilities. In essence, by grouping each weapon system's combat education and training expertise into one COE, the COE benefits from the establishment of culturally unified "trusted partners", who can

effectively "combine academic and operational expertise" to "develop solutions and plot a course of action" in concert. Schein makes a similar observation about the power of cultural assumptions and beliefs to bind organizations together.

> Once there is some consensus on what the shared assumptions are, the discussion proceeds to the role of those assumptions in aiding or hindering what the group wants to do. At this point the consultant must be careful to ensure a balanced discussion because of a tendency to quickly identify a constraining assumption and pit all the energy into figuring out what to do about it. As previously stated, one of the biggest insights for the group comes from seeing how some of the assumptions will aid them, creating the possibility that their energy should go into strengthening those positive assumptions instead of worrying about overcoming the constraining ones. (Schein, 1992)

Reorganizing KC-135 combat education and training elements onto a center of excellence provides AMWC with an opportunity to perform the USAF's Instructional Development (ISD) Process on the entire COE rather than incrementally performing the process on individual elements. The ISD process provides a valuable method to ensure all COE elements are specifically tied to their graduates' next job. According to AF Handbook 36-2235, *Information For Designers of Instructional Systems*,

> In courses that tie content directly to preparing a student to do a job, the instructional designer analyzes the job performance requirements and develops a task list. Remember, job performance requirements may also include skills such as problem solving, leadership, and management. The designer then analyzes the job tasks and compares them with the skills, knowledge, and abilities of the incoming students. The difference between what they already know and can do and what the job requires them to know and be able to do, determines what instruction is needed. (AFH 36-2235V1, 1993)

Figure 5.3. presents a notional view of KC-135 combat education and training education and training elements if organized under a COE structure.

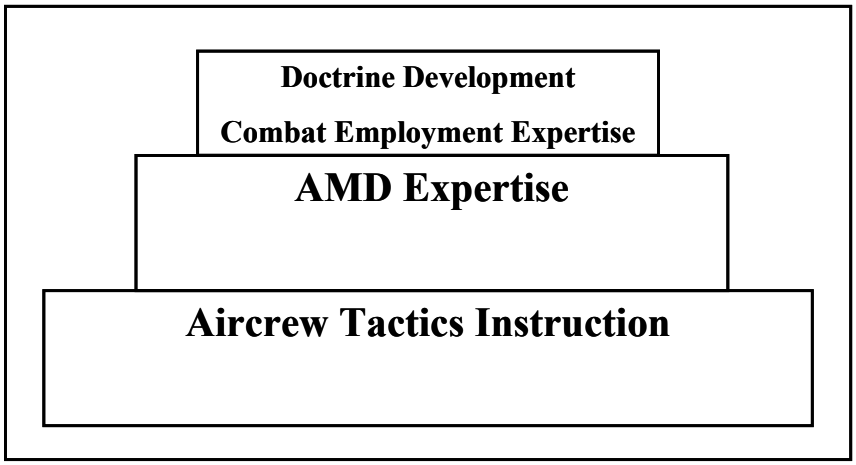

Figure 5.3. KC-135 COE Elements

It is important to distinguish between combat education and training functions and AMWC's existing organizations (TPC, CATT, KC-135 CES). A COE structure would require AMWC's existing organizations to modify and adapt current missions and roles. However, there are many advantages to this structure.

First, the bedrock COE element (Aircrew Tactics Instruction) is the largest indicating two attributes. As the organization responsible for KC-135 aircrew tactics education and training, it should serve as the KC-135 community's tactical foundation by focusing on the community's tactical immaturity. It should combine the conceptual KC-135 tactics attributes of the current CATT with the flying portion of the KC-135 CES that doesn't require MAJCOM waivers. As an element of the COE, the philosophical conflict currently present between CATT and the KC-135 CES would be eliminated. Additionally, as tactical doctrine evolved in upper COE elements, it would be adopted by the Aircrew Tactics Instruction element enhancing the COE's overall continuity. Finally,

as currently conceived, the KC-135 CES produces a small number of exceptionally highly skilled instructors. This has proven maladaptive for two reasons: (1) the advanced portion of the KC-135 CES flying program requires MAJCOM waivers, and subsequently can't be reproduced in operational unit flying training, and (2) the small numbers of graduates constrains their influence in the KC-135 community. Under the COE concept, the Aircrew Tactics Instruction element would exist as a relatively short, concentrated, flying program and would be able to produce highly skilled instructors in sufficient numbers to have the desired community impact.

Second, the middle COE element would concentrate on developing air refueling expertise for AMDs. Conceptually, this unit's role is similar to that currently held by the TPC. However, its incorporation as a COE element has two advantages. First, the course would serve as a prerequisite for the combat employment expertise element ensuring the two organizations' missions were deconflicted. Additionally, as AMD vision, education, and training processes mature, the COE will provide an adaptive background for innovation and coordination.

Third, the top element has two important, and inter-related functions. This element is based on the current KC-135 CES but with its tactical artifacts removed and a renewed focus directly on the combat employment planning, execution, and control processes of an AOC. A mission deliberately oriented toward training and educating individuals for air refueling leadership roles within an AOC effectively accomplishes two of the community's strategic combat objectives. First, it contributes to combat integration by educating and training the community's most highly trained combat employment experts for roles that are precisely where past lessons learned have indicated a need. Second, as

the school adapts is education and training program to a changing environment, it would fulfill the KC-135 community's peacetime need for innovation by anticipating, developing, and coordinating KC-135 combat doctrine, processes, and procedures. Additionally, focusing on these tasks deconflicts its mission from those occupied by other combat education and training organizations while clarifying student selection criteria and follow on positions.

Interestingly, the recommended description of the top COE element is very similar to mission statement currently adopted by the KC-135 CES. The KC-135 CES defines its mission as "providing air refueling combat support continuity by developing experts and leaders capable of synthesizing tactical and operational level air-to-air refueling weapon system employment" (AMWC, 2002). This mission is consistent with the COE concept because tactical doctrine development and combat employment expertise provide an effective means to ensure combat continuity. This mission is also consistent with the following recent message from the CSAF, indicating its consistent with developing USAF vision. "The Air Force has also recognized the emerging necessity to more closely integrate tactical skills with execution at the operational level of war" (Jumper, 2002).

Recommendation for future research

This project has demonstrated the powerful impact of organizational culture on KC-135 combat education and training in an intentionally qualitative manner. According to Schein, this is perhaps the most effective method available under our current understanding of cultural concepts. However, as theory develops, future research should be focused on providing a more quantitative methodology.

Also, focusing on the KC-135 leads to several questions for both the MAF and CAF. First, if a COE organization is adaptive for the KC-135, is it equally adaptive for other combat oriented MAF weapon systems? Second, this project has focused on specific weapon system differences. However, are there culturally similar weapon system families? For example, such MAF combat oriented families are often referred to under the broad headings of air refueling (KC-10, KC-135) and intratheater airlift (C-17, C-130). Could AMWC develop COE structures around these cultural families rather than specific weapon systems? Finally, just as the C-130, which is a MAF weapon system, adopts the tactical paradigm in combat, do any CAF weapon systems adopt an operational paradigm? For example, rear echelon aircraft such as AWACS, J-STARS, and RC-135s may be more culturally similar to the operationally oriented KC-135 than to many of the tactical aircraft they support.

Appendix A: KC-135 Combat Employment Lessons Learned

The following anecdotal review of KC-135 lessons learned is designed to show the importance of operational level KC-135 processes during combat support operations. The lessons are organized into three categories: (1) Force sizing and beddown, (2) Air refueling airspace design and congestion, (3) Air refueling Special Instructions (SPINS), procedures and command and control.

1) Force sizing and beddown:

> Vietnam: By mid-1965, there were some 45 tankers at Kadena in contrast to an earlier plan to buildup the force to 15 aircraft by then." "What happened was later described by the wing's first commander, Brig Gen Morgan S. Tyler, Jr., who was then a colonel, as 'rampant confusion'. It came about *because of a rapid and unexpected early influx of many more KC-135s* [emphasis added] to support upcoming bomber operations. (Hopkins, 1979)

> Desert Storm: As the situation demanded, the planning, employment, basing, and daily numbers of committed tanker aircraft changed constantly throughout Desert Shield and Desert Storm." "*The final numbers of tankers committed to Desert Shield far exceeded the requirements specified in the "on-the-shelf" OPLANS* [emphasis added]. Twenty-one bases in twelve foreign countries were used as tanker beddown locations for over 300 tankers. (DTIC, 1993)

> Allied Force: From the beginning of the air war on 24 march 1999, the US Air Force contribution grew from three to 10 air expeditionary wings." "Each additional aircraft required for an ever expanding war drove tanker numbers higher. Limitations caused by tanker basing decreased off-load capability and further increased the numbers of tankers required." "While US tankers provided the backbone of the air campaign, finding operating locations for so many KC-135 and KC-10 aircraft was challenging. Between 24 March and 8 June, tanker beddown became a major issue for the theater as the force grew from 55 to 175. (Begert, 1999)

2) Air refueling airspace design and congestion:

> Vietnam: Arc Light bombing operations began on 18 Jun 65 with a mission which was heralded at the time as a considerable success, although it was marred by the loss of two B-52s, victims of a mid-air collision in the refueling area." … " Corrective

measures taken as a result of this accident included: establishing multiple refueling tracks at different times, separating neighboring tracks more widely, instituting timing triangles on the approach, and later, establishing the enroute refueling procedures. (Hopkins, 1979)

Desert Storm: During Desert Storm, the critical limiting air refueling factor was airspace congestion. Large strike forces were designed to overwhelm the enemy defense. However, force size was constrained by the number of tankers that could be scheduled into the heavily congested air refueling tracks. This was especially true as the air campaign shifted to the KTO and the majority of air refueling took place over northeastern Saudi Arabia and the Arabian Gulf. As a result, there were more near mid-air collisions. (DTIC, 1993)

Allied Force: One month into the air war, a very experienced tanker colonel arrived as the 'single voice' of tankers within the CAOC." "His presence allowed the chief tanker planner to design a new refueling airspace architecture for an air campaign that eventually tripled its original size. The redesigned air refueling airspace also greatly enhanced flying safety for the duration of the air campaign. (Begert, 1999)

3) Air refueling Special Instructions (SPINS), procedures and Command and Control:

Vietnam: During this period PACAF's requests for refueling increased six-fold, nearly doubling between the months of March and April 1965 alone. By this time, SAC was providing over 600 sorties per month to PACAF fighters. Under such circumstances it was hardly surprising that procedures were unsophisticated, although certain of them found at times to be rather complicated. (Hopkins, 1979)

Desert Storm: Because of the heavily congested airspace over the Saudi Arabian peninsula and the criticality of air refueling to the overall air campaign, a joint agreement between the SAC planners in theater (STRATFOR) and the USCENTAF staff placed a tanker representative on the airborne command element (ACE) team aboard AWACS" … "The tanker representative-an individual familiar with air refueling procedures and the current ATO being executed-on the ACE team could provide AWACS controllers with guidance on the best responses to air battle changes and to requests for emergency air refueling. (DTIC, 1993)

Allied Force): The tanker-planning staff was charged with producing a daily ATO tanker plan, managing the tanker section of the Allied Force Special Instructions, updating the air-refueling communications plan, and designing refueling airspace for the Airspace Control Order. (Begert, 1999)

Appendix B: Clinical Research Methodology
Lead Off Questions (LOQ) and Follow Up Questions (FUQ)

1. External Environment – Survival and Adaptation

1.1. Mission

a. History of organization
(LOQ) When was your organization founded?
(FUQ) Who was involved and why?
(FUQ) Why (to what purpose) was your organization founded?
(FUQ) Has that original vision or purpose changed over time? Why?
(FUQ) How do you feel about these changes (if they exist)?

b. Key Stakeholders
(LOQ) Who are your organization's key stakeholders (i.e. who cares what goes on here)?
(FUQ) Why do they care what happens here?
(FUQ) Would you characterize any stakeholders as benevolent or adversarial? Why?
(FUQ) Who are your customers? What do they value from your graduates?
(FUQ) Do your graduates possess education or training that aren't valued by your customers? Why?
(FUQ) Do the needs or desires of your different customers conflict at times? Why? How have you managed the conflict?

c. Organizational purpose / tasks.
(LOQ) Your organization is formally identified as a school. Are you primarily educating, training, or both? Why?
(FUQ) How does AMC communicate its objectives for your school's graduates?
(FUQ) Does your organization assume important roles other than to educate and train? If so, were these roles internally identified or external assigned?
(FUQ) If your organization has internally identified other roles, why did this occur? Why are the other roles important?

1.2. Organizational Goals.

a. Graduate's roles, skills, tasks.
(LOQ) Where should your graduates be assigned? Why is this important?
(FUQ) Do your graduates, in fact, get assigned where you think they should?
(FUQ) In what manner are students different when they graduate your program from when they first arrive? Why is this important?

b. Graduate attributes (characteristics)
(LOQ) Contrast your best and worst graduates. What characteristics distinguished them?
(FUQ) Give me an example of a graduate who made a significant impact and reflected well upon your organization? Why was their performance important to your school?

(FUQ) How has a past graduate "embarrassed" your organization? What was the consequence (known or suspected) of the graduate's poor performance?
(FUQ) Has a student failed this program? Why?
(FUQ) If so, why were the standards that weren't met so important to the organization?
(FUQ) How do you think "outsiders" perceived the failure?

c. Graduate utilization
(LOQ) Give me an example of a graduate whose skills and knowledge were well appreciated in their new positions? Conversely, are there examples of graduates who weren't well appreciated in their new positions? What were the factors that impacted these situations?
(FUQ) Has an organization or leader expected skills or knowledge from a graduate that you didn't expect?
(FUQ) If so, why did this occur? Additionally, who do you think was right, the school's syllabus or the desires of the leader?
(FUQ) Why do you think other organizations or leaders may be seeking skills or knowledge that are contradictory to what your organization provides?

1.3 Means of attaining goals.

a. Education and Training
(LOQ) What makes your program challenging for students?
(FUQ) Was the program deliberately designed to be challenging, or did it just evolve?
(FUQ) If deliberate – why? Could you achieve your goals with a less-stringent program?

b. Flying training
(LOQ) What is the importance of flying to your program? Why?
(FUQ) Can a student fail a flying mission? How?
(FUQ) Are there mitigating circumstances? How is the failure documented?

c. Instruction.
(LOQ) What is most helpful in contributing to instructional excellence in this organization?
(FUQ) What skills do you admire most in instructors?
(FUQ) Examples?
(FUQ) How do new members acquire these skills?

1.4 Measurement of organizational progress toward goals.
(LOQ) How do you know your school is doing its job?
(FUQ) Who says your doing your job well? Does your organization agree with them at all times?
(FUQ) Is you organization responsive to all customer needs? Should it be?
(FUQ) How do you get feedback? How do you use feedback?
(LOQ) Is there a formal process for grading organizational performance?
(FUQ) What factors are you graded on?

(FUQ) Are they the correct factors? Why?

1.5. Remedial and Repair Strategies.

a. Past organizational mistakes.
(LOQ) Describe an example of a "wrong road" taken by your organization in the past?
(FUQ) Why was it a mistake?
(FUQ) If changes were made – who initiated them and why?
(FUQ) What was the impact (legacy) on your organization?

b. Repair strategies.
(LOQ) How does your organization solve problems?
(FUQ) Who solves them and how?
(LOQ) What is the most important Lesson Learned from past organizational mistakes? What contributed to the mistake?
(FUQ) Why is the lesson so important to you?

2. Managing Internal Integration

2.1. Group Boundaries

a. New members
(LOQ) What do you look for in new members? Why?
(FUQ) Is it best if you hire from within or from outside the organization? Why?

b. Group Identity
(LOQ) How can I tell that someone is a graduate or member of this organization?
(FUQ) How does the (KC-135 or C-130) community say about you? Why?
(FUQ) What does the other AMC WIC/CES say about you? Why?
(FUQ) What does AMC say about you? Why?
(FUQ) What does the USAFWS say about you? Why?

c. Questions for newest guy in the group.
(LOQ) What was your first impression of this unit?
(FUQ) From this impression - what factors were the most pleasing and what factors were the most anxiety provoking?
(FUQ) What surprised you most about membership in this organization?

2.2 Common Language

a. Tell me what the following terms or concepts mean to you.

(LOQ) Distinguish between combat and combat support assets? Is this distinction important to you? Why?

(FUQ) Is the (KC-135 or C-130) a combat or a combat support asset? Why?
(FUQ) Do either of these terms have negative connotations either within your organization or your stakeholders?

(LOQ) Explain what the following terms mean to you: Tactics, Tactician, and "Having a tactical-mindset or orientation"?
(FUQ) Are these distinctions important?
(FUQ) Do you think other organizations or stakeholders agree on your interpretations? Why?

(LOQ) What does it mean to be a patch wearer?
(FUQ) Are the attributes you associate with a patch wearer recognized and valued by: AMC, the KC-135 or C-130 community, operational leadership?

2.3. Establishing trust
(LOQ) What type of team model best describes your organization, a track team (individuals working independently but sharing in group success) or a football team (tightly coordinated group activity aimed at common goals)?
(FUQ) Why is this important?
(FUQ) How does your group establish "who's right" during internal debate or conflict?
(FUQ) How do you know what's true or real in your organization?
(FUQ) Does your organization have subgroups or individuals who differ on some organizational beliefs?
(FUQ) If so, how are these conflicts resolved?

2.4 Rewards and Punishments
(LOQ) Who is or was a hero in this organization? Why?
(FUQ) Was this person rewarded for their actions?
(LOQ) What will get you "into trouble" around here? Why?
(FUQ) How are individuals punished (formally or informally) for improper behavior?
(LOQ) What are a couple of key statements that should go into the organization's "code"? Why are they important?
(FUQ) tell me about someone who inadvertently "broke the code"? What was the consequence?

2.5 Critical Incidents
(LOQ) Every organization, especially new ones, must weather crisis or extreme challenges. Tell me about a crisis your organization faced?
(FUQ) What were the consequences of the crisis?
(FUQ) How are things different now?
(FUQ) Does this story get told to new members? Why?
(FUQ) What does this story mean to your organization?

FINAL QUESTION. What is the single most interesting story you've ever heard about this organization? What does the story tell you?

Appendix C: Organizational Artifacts and Espoused Values

A. Tanker Planner Course (TPC).

1. Artifacts.

a. Primary Combat Employment Paradigm: TPC members identified the operational paradigm as the basis for their course. They acknowledge tactical level employment issues, however they feel tactical issues lie outside their education and training mission.

b. Organizational Chart. This "abbreviated" organizational chart presents only the organizations that are applicable to this project. For example, both the Operations Directorate and Det. 1 include other organizations that aren't presented.

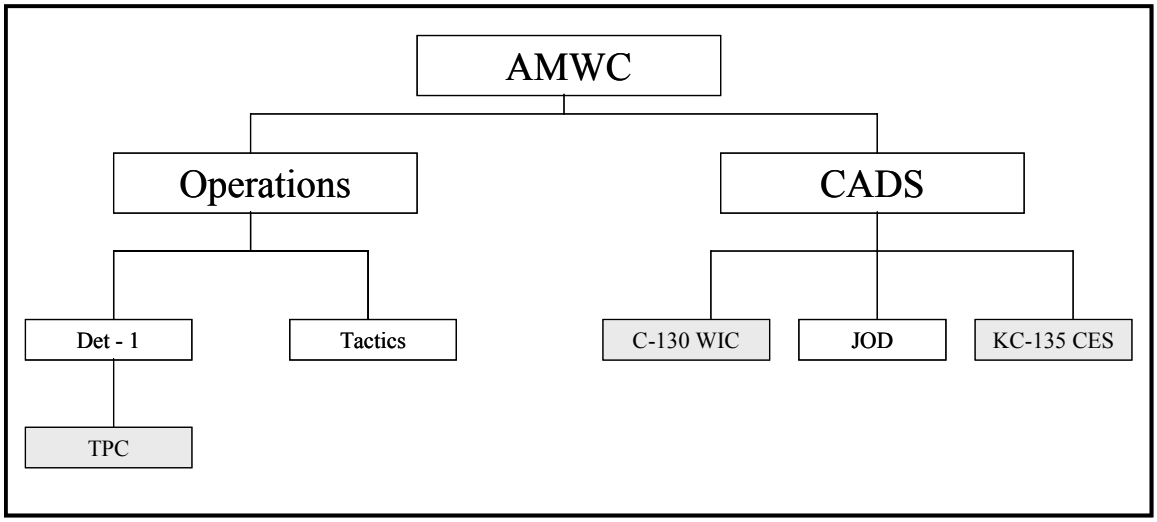

Figure C.1. Abbreviated AMWC Organizational Chart

c. Organization Mission.

(1) Operations Directorate. The Operations Directorate is tasked with education, training, doctrine, and tactics advocacy for active duty, ANG, and AFRC personnel. The directorate's mission is broad and covers a variety of topics ranging from aircraft tactics, doctrine, and maintenance to current intelligence, communications, command

and control systems, and training for Directors of Mobility Forces (DIRMOBFOR) (AMWC, 2002).

(2) Det-1 Mission. Detachment 1 provides education and training in the Air Operations Center (AOC), air mobility doctrine, operational level of war planning and execution, and inter/intra theater air mobility C2 systems and processes (AMWC, 2002)

(3) Tanker Planner Course. According to organizational members, the TPC has no formally recognized mission statement. Interestingly, members valued not having a mission statement, feeling this provided them the freedom to establish and modify the TPC's objectives and methods quickly in a dynamic environment. Said one member, "We're not only teaching the book, we're writing the book". The TPC's parent organizations, however, do have formal mission statements.

(4) Tactics Division. The Tactics Division provides a world-class learning environment to train qualified mobility experts on tactics principles, procedures, systems, and doctrine (AMWC, 2002).

d. TPC Course Description. The purpose is to produce graduates who possess the knowledge and skills necessary to provide tanker expertise in any Air Operations Center (AOC), as well as a working knowledge of the current computer based planning systems. (ETCA, 2002).

2. Espoused Values, Myths, Legends, Stories, or Charters.

a. Combat/Combat Support. Members of the TPC had no strong opinions on the distinction between the terms Combat and Combat Support. However, they did express

strong feelings regarding the distinction between their combat-oriented role and AMC's strategic movement mission. For example, in a reference to respective tasks and skills, one member said, "The TPC is completely backwards from the Coronet Planning Course". Additionally, organizational members greatly value the positive relationship they've developed with ACC's combat C2 organizations located at Hulbert Field FL. The concept of integration in concept, missions, and in physical location, was often repeated. Members frequently mentioned the benefits of being located close to the ACC organizations they were training to integrate into.

b. Tactics, Tacticians. Organizational members stressed the distinction between tactical level (aircrew) tactics and operational-level tactics. One member described tanker tactics as existing in a continuum, with operational level tactics relying on tactical (aircrew) level capabilities. When asked if tactics fell within their organizational domain, they felt aircrew tactics did not but many operational level tactical concepts did. For example, they believed the development and design of combat refueling airspace met the criteria for being a tactic. Members also felt the C-130 WIC's tactical (emphasis on aircrew) orientation was too narrow and that C-130 WIC graduates "lacked sufficient operational knowledge".

c. USAFWS Patch. Organizational members had a high opinion of the USAFWS and felt that patch-wearers "are valued by the USAF". However, they rejected the premise that they required a patch to facilitate CAF integration. "I don't need the patch because the CAF needs me".

d. Affective Objectives (desired graduate mindset): Organizational members had strong feelings on this subject, with the concept of transformation repeatedly arising. They felt

it was important for graduates to "think more broadly" of their combat role after graduation than they did when initially arriving to the course. Specifically, they felt students arrive with a limited "aircrew" perspective on combat support operations that the course must, in turn, broaden. One member said the organization intentionally inflicts "disconfirming data" on new subjects to quickly and unambiguously establish the student's lack of knowledge and expertise in the course's subject areas.

e. Outsider Perceptions. Organizational members had no idea what C-130 WIC members thought of the TPC. Ultimately, they didn't see a relationship or connection between the two courses. In contrast, they expressed mixed opinions on the TPC and KC-135 CES relationship. Formally, they believe the relationship is good. They have received praise from the KC-135 CES/CC and they have developed an effective working relationship with KC-135 CES members, especially those that teach related material. They valued this relationship from the standpoint of coordination and standardization between the courses. Informally, they expressed bewilderment over what they perceived as "occasionally combative" remarks and attitudes from KC-135 CES members. Although, TPC members see the two organizational missions as distinct, they believe some KC-135 CES members view the TPC as a potential threat. When pressed, one member felt the basis of conflict was, "The KC-135 CES is established on firm soil, but they don't realize it." When asked what they believed AMC leadership thought of their course, the response was very positive. They felt the organization had received a great deal of attention and exposure from senior leaders that confirmed they were "on track".

f. Crises. None of the members could recall a significant founding event or crisis in the organization's short history. They attributed this to the autonomy they possessed as AMC's subject matter experts as well as their relative youth as an organization.

g. Myths, stories, charters. New organizational members could not identify any significant myths or stories that had been passed along by founding members.

B. C-130 Weapons Instructor School (WIC) Results.

1. Artifacts.

a. Primary Combat Employment Paradigm. C-130 WIC members identified the tactical paradigm as the basis for their course. They recognize operational level employment issues exist, but feel these issues are outside their education and training mission.

b. Organizational Chart – see figure C.1.

c. Organization Mission.

(1) Combat Arial Delivery School (CADS). CADS graduates weapons officers who possess instructor abilities, knowledge, and flying skills to provide expertise in all aspects of combat employment. Conducts advanced joint training with the Joint Readiness Training Center (JRTC) for AF-Army contingency forces under tough, realistic conditions of low-to-mid intensity combat (AMWC, 2002).

(2) C-130 WIC. The C-130 WIC mission is to produce "target arm" graduates possessing the instructor abilities, knowledge and flying skills necessary to provide expertise in all aspects of C-130 combat employment at squadron, wing, and headquarters levels (AMWC, 2002).

(3) Joint Operations Directorate (JOD). The Joint Operations Directorate (JOD) is AMC's premier tactical employment training organization for tactical airlift units. The

JOD is the primary mobility liaison with the U.S. Army's Joint Readiness Training Center (JRTC) at Ft. Polk, Louisiana (AMWC, 2002).

d. C-130 WIC Course Description. Trains qualified C-130 instructor pilots and navigators as instructors in all phases of C-130 combat aerial delivery employment. Graduates are qualified combat aerial delivery weapons and tactics instructors capable of implementing, conducting, and supervising weapons training programs within their units up to and including headquarters level. Graduates will also coordinate combat aerial delivery planning for the deployed commander to ensure effective use of resources. Commanders are responsible for ensuring graduates are used as instructor or supervisors in weapons and tactics training programs for a minimum or 3 years after graduation (ETCA, 2002).

2. Espoused Values, Myths, Legends, Stories, or Charters.

a. Combat/Combat Support. In contrast to TPC members, C-130 WIC members perceived a difference between the terms “combat” and “combat support”. They valued their role as combat experts and preferred the term combat over combat support. One member felt the term combat support “watered down” the essence and importance of their mission. However, in a manner similar to that of the TPC group, the C-130 WIC members felt it was more important to distinguish between peacetime movement processes and combat movement (aerial delivery) processes than to distinguish between combat and combat support. When asked to elaborate on the distinction, the group felt they were performing combat missions when in the presence of threats “getting shot at or accepting a higher level of risk”. One member emphasized this point saying, “We are always doing mobility, however combat is driven by the environment.”

b. Tactics, Tacticians. C-130 WIC members are more oriented toward aircrew tactics and aircraft maneuver than TPC members. When asked to define tactics, one member said tactics is "… how you use your airplane to accomplish the mission". Consistent with their mission and course description, members felt that their primary purpose, as an organization, was to train tactics experts to return to their home units and train aircrew on planning and executing tactically oriented combat missions. When asked where course graduates should be assigned, the overwhelming response was back to their flying unit. Organizational members were united in their belief that C-130 commanders value unit tacticians. "OSS/tactics is a positive position in the C-130 world. Most of our guys in that position have direct access to the OG/CC."

c. USAFWS Patch. C-130 WIC members placed great value on the weapon school patch, and on being known as "patch wearers". The patch is symbolic and represents many C-130 WIC core values. First, it represents ACC's acceptance and validation of the courses syllabus. In addition to organizational excellence, the patch also represents personal credibility. One member felt the patch was needed for integration into CAF processes because, "the wearer was instantly recognized as an "above average" expert in his weapon system."

d. Affective Objectives (desired graduate mindset). The term "tactical mindset" is important to C-130 WIC members. Members repeatedly used this phrase to define their course objectives as well as a vital graduate attribute. When asked to elaborate on the exact characteristics that define a tactical mindset they mentioned: "zealous", "thinks differently", "problem solving/critical reasoning", "makes a stand", "leans forward", "finds the smartest way". One individual summarized the concept of a tactical mindset as

"… the ability to tie a certain thread of knowledge throughout the mission planning, flight, and debrief to create a coherent stream of education." C-130 WIC members believe the presence of a tactical mindset is missing throughout the C-130 community as well as throughout AMC. "Spreading the word" on developing a tactical mindset throughout the command is a core objective of the group. The concept of transformation was not explicitly expressed, as it was with TPC members, but was repeatedly implied. "Weapons Officers are the agents of change within AMC."

e. Outsider Perceptions. When asked what the C-130 community thought of the WIC, members responded with "hardworking" and "smart" however they also included the word "impractical". When asked why, they felt they possessed skills and training, as well as a mindset, that weren't always fully appreciated by the community. This was especially true during peacetime training operations. One member relayed a story of a squadron operations officer claiming he had to "file down the fangs" of C-130 WIC graduates because they were perceived as overly aggressive. In an interesting contrast, members felt the USAFWS thought they were "too broad". They pointed out that "Our graduates have been older than the typical USAFWS target student." Additionally, "We are limited by our aircraft's performance and avionics. The school figures out ways to maximize the integration." Members had no strong opinions on what members of the TPC or the KC-135 CES thought of the C-130 course. Finally, the group believed that senior AMC leaders valued the school as "a feather in their cap".

f. Crises. Organizational members were able to recall two crises in their history. The first was a perception that the organization had "drifted" from a strict interpretation of the USAFW model. Recent efforts have been placed on "returning to their tactical roots". A

constant theme throughout the meeting was a reaffirmation of the organizational purpose to create a squadron level officer to act as the "instructor's instructor". Members have deliberately elected to not produce an AOC (operational level) graduate because this detracts from their tactical emphasis. The second crisis came in the form of an under achieving student. Members found that dealing with this situation forced them to deliberately address their objectives and performance standards and incidentally confirmed their re-emphasis on tactical, instructor abilities.

g. Myths, stories, charters. New organizational members related both positive and negative stories that had been consistently passed along. The negative stories relayed how past cadre or graduates had "let the unit down" through unacceptable performance. Members spoke in terms of "not producing" and ultimately "hurting the credibility" of the group. The positive stories were centered on one influential initial cadre member who provided formal and informal leadership during the organization's formative period. Members used terms such as "heart and soul", "believed in the cause", and "continues to hold the group together" when describing this influential member. When asked why these stories were important enough to be passed along, the group felt these stories were intended to "show the way" to new members through this organizational hero's past actions.

C. KC-135 Combat Employment School (CES) Results.

1. Artifacts.

a. Primary Combat Employment Paradigm. KC-135 CES members identified the operational paradigm as the basis for their course. However, they are quick to point out that KC-135 operational level employment issues are based on, and to use their word, "

interwoven" with tactical level capabilities. They believe their education and training mission requires an emphasis on synthesizing tactical level concepts and capabilities into the operational level processes where they are most effectively expressed.

b. Organizational Chart –see Figure C.1.

c. Organization Mission. The KC-135 CES provides air refueling combat support continuity by developing experts and leaders capable of synthesizing tactical and operational-level air-to-air refueling weapon system employment (AMWC, 2002).

d. Course Description. (A) The purpose of the KC-135 CS is to produce graduates who possess the knowledge and skills necessary to provide expertise in all aspects of KC-135 employment at the squadron, wing, and headquarters level [additional details omitted for brevity]. (B) The KC-135 CES curriculum trains the student to be an expert in every facet of KC-135 employment. The graduate is highly versed in communication skills and effective instructional techniques both in the academic and flying environment. The graduate is familiar with the structure and policies of the MAF/CAF and can interface with all elements to help bring about effective combat ready forces (ETCA, 2002).

2. Espoused Values.

a. Combat/Combat Support. KC-135 CES members didn't have strong opinions on the distinction between combat and combat support. In general, they felt they "should be considered combat support". Either way, they distinguished combat missions by the level of threat, or risk.

b. Tactics, Tacticians. Members interestingly thought the term "tactics" is "ambiguous" and "easily misinterpreted" throughout the KC-135 community. They felt most KC-135 aircrew were trained to perceive tactics as a "hands on the stick and throttle" concept.

This interpretation had a distinctly negative connotation to organizational members who stressed the difference between defensive aircraft maneuvers and operational level tactics. They believed it was important to acknowledge their commitment to integrating aircrew tactical concepts into operational level (AOC) processes.

c. USAFWS Patch. KC-135 CES members expressed conflicting beliefs about the USAFWS patch. Asked what it represents to them they used positive terms such as, "high expertise", "expert in aircraft", "tactics and employment expert". When pressed for more precision, they ultimately agreed on the term "credibility" as the encompassing meaning of the patch. However, they had negative feelings associated with the pursuit of the patch. When pressed for more detail, they believed that the organization had previously adopted a "patch at all costs" strategy, which was subsequently rejected by the organization. Members referred to "two camps" in the organization's early development, one focused on attaining the patch, and one focused on what they termed "finding truth". Additionally, they felt the influence of the school's graduates had solidified their organization into the "truth" camp. They expressed a high value on the concept of "seeking truth" in an ambiguous environment. Members voiced this opinion with strong language. Two individuals independently claimed that past pursuit of the patch had "prostituted" the organization.

d. Affective Objectives (desired graduate mindset): The concept of graduate transformation was again a central theme in discussions. All members used the phrase "getting it" to describe the change in attitudes and beliefs that distinguished arriving students from departing graduates. When pressed for more precision, they felt the attributes of "getting it" included critical analysis skills, pragmatism, a commitment to

truth, multidimensional experience with depth in a particular area, and subsequently, credibility. All members agreed that the course was intentionally difficult to help ensure a successful transformation process. One individual referred to a process of " … breaking down previous beliefs in students and replacing them with new beliefs."

e. Outsider Perceptions. Overall, the KC-135 CES members expressed stronger feelings regarding how other organizations thought of them. Interestingly, these perceptions often existed in conflict. For example, members felt the C-130 WIC considered them to be "patch wanna-be's", "patch diluters", or a "non-flying operational level school". However, in contrast, they thought the KC-135 community felt they were "overly focused on performance and maneuver", or "pushing the envelope". When asked what senior AMC leadership thought of them, they again presented mixed feelings. On one hand, they believed AMC had a high opinion of their program and the role their graduates were playing in current combat operations. However, they also felt early developmental efforts had been ill defined and subsequently, AMC wasn't entirely sure "how they should be used" or "where they fit in".

f. Crises. The KC-135 CES group agreed on two past organizational crises. Interestingly, they were very similar to those of the C-130 WIC. The first crisis was resolving the previously mentioned conflict between the tactically oriented vision supported by some internal members and their parent organization, CADS, with the operationally oriented vision that was supported by other internal members. New organizational members who hadn't witnessed the conflict were still knowledgeable about the conflict's players and details and considered it a defining moment in the group's history. The new member's initially expressed astonishment at discovering they

knew this particular history so well. Pressed to answer why this crisis was so important, they believed the conflict over the organization's purpose played a large role in the group's later professed value on "truth" and its discovery. The second crisis involved addressing poor student performance. Similar to the C-130 group, the KC-135 CES members thought the crisis was good in the long run because it forced the group to deliberately consider performance standards as well as organizational objectives and values.

g. Myths and stories, charters. One story and one charter were related. Both were important to organizational members. The story, referred to by members as "Black Wednesday" tells of a conflict between the KC-135 CES and CADS during an early syllabus development meeting. According to members the moral of the story is that individuals must be willing to accept personal risk and "fall on your sword" in the pursuit of what they believe to be right. Members felt it was important to acknowledge that the conflict had indeed been resolved and that the current relationship with CADS was a good one. However, they believed a legacy of this conflict was a strict "party line" on what can be said to outsiders by both cadre and graduates. All members felt the party line was a positive thing and was required to protect the credibility of the organization. They acknowledged, however, that the party line was adaptable, but only if members conform to a charter referred to as "The Gorilla Test". The premise of the Gorilla Test is that new ideas must be subjected to the critical scrutiny of other members before they can be accepted and spread outside the organization. The rules of the charter require members with new ideas to encourage others to attack the idea as aggressively as possible with the understanding that any idea that survives the process must represent "truth".

Consequently, new ideas that survive the Gorilla Test are incorporated into the group's party line.

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14. ABSTRACT
While many of the challenges associated with the combat employment of the KC-135 are well documented and understood, Air Mobility Command's education and training response, a KC-135 Weapons Instructor Course, became a source of conflict - both within AMC and between AMC and outside organizations. Because a KC-135 WIC was a new concept, conflict was often based on beliefs and assumptions best explained by organizational culture. This project's hypothesis is that mobility weapon systems adopt tactical or operation combat employment paradigms (assumptions and beliefs) that dictate subsequent combat education and training cultures. Cultural assumptions are a powerful force and govern attitudes and perceptions over organizational purposes, student attributes, graduate roles, and ultimately, proper combat employment skills, knowledge, and mindsets. This project establishes if combat employment paradigms are integrated into AMWC's respective education and training cultures and also assesses organizational culture's impact on KC-135 combat employment education and training. The research results indicate MAF combat employment paradigms are integrated into respective cultures. Additionally, cultural conflict can constrain innovation and adaptation if individuals, offices, or units, are organized in countercultural structures. The project recommends an organizational structure that arranges education and training elements in culturally organized structures rather than functionally organized structures.

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